ERIC Document Resume	See Instruction Sheet	DATE OF RESUME 5/27/65	DATE RECEIVED

A. PUBLICATION DATA

1. ERIC NUMBER ED000227

2. ORIGINATOR CONTROL NO(S). 8066

3. IDENTIFICATION NO. OE-51004-1 thru 15

4. AUTHOR(S): Division of Higher Education, Officer of Education

5. TITLE OF DOCUMENT ABSTRACTED: College and University Physical Facilities Series

6. PUBLICATION TITLE: N.A.

7. EDITOR(S): N.A.

8. PLACE OF ORIGIN

ORG. Office of Education

U.S.Department of

ST. Health,Education and

CITY, STATE Welfare

Washington,D. C.

TELE. EXT.

INST/LOC CODE

9. PUBLISHER OR SOURCE Office of Education

10. VOL.	11. PAGES	12. MO./YR.	13. TOTAL PP.
N.A.	N.A.	1962	N.A.

DO NOT WRITE IN SPACE BELOW

MICROFILM COPY AVAILABLE

YES ☒ NO ☐

COPYRIGHT GRANTED

YES ☐ NO ☒

COPYRIGHT RELEASE FILED

YES ☐ NO ☐

TYPE OF REPORT

PROPOSAL ☐

IN-PROGRESS ☐

FINAL ☒

FOLLOW-UP ☐

OTHER ERIC REFERENCES:

ERIC SATELLITE CODE

B. INDEXING DATA

14. SUBJECT AREA

15. TYPE OF ENDEAVOR surveys

16. INDEXING TERMS (6-12)	buildings and equipment	surveys	finances
office of education	planning	science	expenditures
colleges	management	libraries	classroom
enrollment	administration	housing	bibliographies

17. ABSTRACT A series of preliminary reports derived primarily from physical facilities data reported for the "College and University Facilities Survey" series; the "College and University Enrollment and Facilities Survey, 1961–65"; and "Higher Education Planning and Management Data."

The following issues of the *College and University Physical Facilities Series* were published in 1962. Request for individual copies should be addressed to the Publications Inquiry Unit of the Office of Education. Request OE–51004–1 through OE–51004–15, as numbered below.

1. *Inventory of Higher Education Physical Facilities*, E. Eugene Higgins and Mary B. Fuller. February 1962, 7 p.
2. *Science Facilities Planning Aids*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. March 1962, 15 p.
3. *Library Facilities Planning Aids*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. March 1962, 15 p.
4. *Student Accommodations in Instructional Facilities, 1960–61 and Planned for 1965–66*, Leslie F. Robbins. July 1962, 7 p.
5. *Student Accommodations in Residential Facilities, 1960–61 and Planned for 1965–66*, Leslie F. Robbins. July 1962, 6 p.
6. *Expenditures Planned for Higher Education Facilities, 1961–65*, Leslie F. Robbins. July 1962, 7 p.
7. *Classroom Facilities Planning Aids*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. June 1962, 15 p.
8. *Married-Student Apartment Planning Aids*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. July 1962, 11 p.
9. *Residence Hall Planning Aids*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. July 1962, 19 p.
10. *Campus Parking Bibliography*, E. Eugene Higgins and Dorothy M. Jones. August 1962, 3 p.
11. *Student Infirmary Planning Aids*, E. Eugene Higgins and Dorothy M. Jones. August 1962, 3 p.
12. *Space Utilization*, E. Eugene Higgins and Dorothy M. Jones. August 1962, 7 p.
13. *College Union Planning Aids*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. August 1962, 11 p.
14. *Gross Area of Non-Residential Buildings, by Facilities Category*, E. Eugene Higgins, Mary B. Fuller, and Dorothy M. Jones. September 1962, 4 p.
15. *New Construction and Rehabilitation on College Campuses, 1959–60*, W. Robert Bokelman and Leslie F. Robbins. August 1962, 10 p.

ERIC No. 18.

C. FUNDING

19. SUPPORTING ORGANIZATION

NOT AVAILABLE FROM ERIC: CONTACT PUBLISHER

20. DIVISION OR DEPT.

21. CONTRACT NO.

PROJECT NO.

22. TOTAL COST OF PROJECT

23. DURATION OF PROJECT

U.S. Department of Health,
Education, and Welfare
Office of Education

Division of Higher Education

HE

College and University Physical Facilities Series

8066

R-6-8

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

FEBRUARY 1962

OE-51004-1

INVENTORY OF HIGHER EDUCATION PHYSICAL FACILITIES

by E. Eugene Higgins, Specialist for Physical Facilities
and
Mary B. Fuller, Research Assistant

A perpetual or continuing inventory, building by building, of existing facilities at higher education institutions will be established by the "Inventory of College and University Physical Facilities, December 31, 1957."[1/] (The Inventory will be part 3 of the 5-part College and University Facilities Survey[2/] begun in 1956 by the Office of Education.) Inventory definitions, instructions, and schedules were distributed in March 1958 to all colleges and universities listed in the Education Directory 1957-58--Part 3, Higher Education.[3/] The collecting, editing, and coding of data for transfer to IBM cards continued until December 1960. At that time almost 30,000 schedules reporting 41,380 buildings had been received from 1,664 institutions. Although only 84.9 percent of the institutions in the aggregate United States (i.e., the 48 States, District of Columbia, and outlying parts) participated, these institutions enrolled 95.5 percent of the fall 1957 enrollment in higher education. Nine States provided 100-percent responses (table 1). Thus, a very good response base exists from which to derive normative data.

> This is the first of a Physical Facilities Series, a new Office of Education publication designed to present, as it becomes available, preliminary and other information concerning college and university physical facilities. A separate Finance Series presents information on matters related to higher education finance. These two series will enable the Office to disseminate data before publication of the final report.

1/ By the authors of the present publication and now in process.

2/ Part 1, "Cost and Financing of College and University Buildings, 1951-55," was completed and published in 1959; and Part 2, "Planning for College and University Physical Plant Expansion, 1956-70" was completed and published in 1960. Part 5, "New Colleges and Universities Planned," has not yet been initiated. Part 3, "Inventory of College and University Physical Facilities, December 31, 1957," and Part 4, "College and University Enrollment and Facilities Survey, 1961-65," are now in process and thus accessible for purposes of this series.

Plans for the complete survey were formulated in cooperation with a special committee appointed by the Federation of College Business Officers. These plans were then reviewed by a number of higher education administrators and other persons interested in such a survey, including representatives of regional and national associations and certain executive agencies and Congressional subcommittees.

3/ Published annually by the U. S. Office of Education.

Withdrawn

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

In November 1959 a sample study of 111 institutions having 2, 280 buildings was published. These institutions were selected from responses to that date, on the basis of proportional representation by institutional type, control, regional location, and size. Data from the sample indicated that approximately 80 percent of the buildings were in satisfactory condition for continued use, 8 percent in poor condition (need major rehabilitation), and 12 percent in unsatisfactory condition (should be razed or demolished, but the need for space and the lack of money to build a replacement forces continued use). Analyses of sampled buildings by functional use revealed that residential facilities were in slightly better condition than instructional buildings.

The extensive data secured for the Inventory have furnished material for numerous and comprehensive statistical tables now being prepared. Building analyses in the final report will include type of control, type of school, location by State and region, type of institution, enrollment, number of buildings, plant-fund investment, ownership, estimated value, type of construction, period of initial occupancy, period of rehabilitation, condition, function of assignable area, and size and capacity of various functional areas within buildings. Lists of buildings by functional use (science buildings, libraries, residence halls, student centers, etc.) are being compiled for those buildings occupied for the first time during the 1948-57 decade. These lists will show building name, location, and date of initial occupancy, and will be distributed through the medium of the present series.

It should be pointed out that the normative data which will appear in future issues of the present series and in the final report on part 3 are not to be considered as standards, but rather as information which can serve as guidelines. Some of the specific uses which can be made of the survey data are the following:

1. To provide a continuing record of each building by function, age, investment, estimated value, condition, type of construction, assignable area, gross area, capacity, etc.
2. To provide a basis for appraisal of existing buildings to determine whether they should be rehabilitated, modernized, expanded, or abandoned.
3. To establish a base line for long-range planning.
4. To establish a basis for determining enrollment capacities of existing and proposed facilities.
5. To provide a basis for space utilization studies.
6. To provide a basis for scheduling custodial and other maintenance-and-operations service.
7. To establish a base for deriving normative data that may be compared, for evaluative purposes, with data on other similar buildings or institutions or may be used for planning future facilities.
8. To assist State or regional groups, including State legislatures, in their long-range planning.
9. To establish a single source of such information at the national level.
10. To provide a base for the review of applications for Federal assistance in existing programs or in programs which may be established in the future.

The four tables presented in this issue are the first tables to be derived from complete data submitted for the Inventory. Table 1, referred to earlier, shows institutional response to this part of the survey, by region. Tables 2 and 3, respectively, report the distribution, by period of initial occupancy, of buildings located at publicly and privately controlled institutions participating in the Inventory survey. Table 4 reports estimated value, as of December 31, 1957, of higher education buildings by State, region, and control.

For public institutions over the Nation (table 2), approximately 90 percent of the buildings were less than 50 years old on the inventory date, and approximately 74 percent less than 28 years old. Moreover, about 75 percent of the buildings at public institutions in the West region are less than 18 years old. Among private institutions (table 3), approximately 78 percent were less than 50 years old when inventoried, and approximately 54 percent less than 28 years old. The West region again invites attention, since approximately 58 percent of the buildings at its private institutions are less than 18 years old. These figures will become more meaningful, however, when considered together with other important factors, such as type of construction and condition.

Table 4 reveals that, in all regions except the Northeast, public institutions reported estimated building values well above those reported by private institutions. In that region, however, the estimated building values of private institutions exceeded those of public institutions by almost 4 to 1.

Table 1.--Response Rates in Terms of Institutions and Enrollment,

College and University Facilities Survey, Part 3,

by Region and State: December 31, 1957

Region and State	INSTITUTIONS			FALL 1957 ENROLLMENT		
	Total	Responses	Percent	Total	Represented	Percent
AGGREGATE UNITED STATES	[2]1,961	1,664	84.9	3,067,774	2,929,763	95.5
UNITED STATES[1]	1,944	1,653	85.0	3,026,960	2,897,778	95.7
NORTHEAST	485	413	85.2	774,430	743,732	96.0
Connecticut	30	22	73.3	39,992	37,491	93.7
Maine	18	17	94.4	10,855	10,483	96.6
Massachusetts	84	71	84.5	120,868	114,416	94.7
New Hampshire	10	9	90.0	11,044	10,834	98.1
New Jersey	41	32	78.0	64,352	56,737	88.2
New York	158	138	87.3	336,314	327,138	97.3
Pennsylvania	122	106	86.9	169,068	165,611	98.0
Rhode Island	9	8	88.9	14,106	13,846	98.2
Vermont	13	10	76.9	7,831	7,176	91.6
NORTH CENTRAL	587	489	83.3	872,832	831,528	95.3
Illinois	104	78	75.0	164,157	153,983	93.8
Indiana	49	44	89.8	78,401	75,971	96.9
Iowa	50	45	90.0	49,854	48,951	98.2
Kansas	47	41	87.2	45,248	44,408	98.1
Michigan	55	46	83.6	135,515	132,126	97.5
Minnesota	42	29	69.0	67,192	62,736	93.4
Missouri	62	56	90.3	72,622	70,431	97.0
Nebraska	22	22	100.0	27,106	27,106	100.0
North Dakota	12	12	100.0	11,156	11,156	100.0
Ohio	65	50	76.9	148,568	139,742	94.1
South Dakota	16	16	100.0	13,788	13,788	100.0
Wisconsin	63	50	79.4	59,225	51,130	86.3
SOUTH	610	519	85.1	796,839	755,550	94.8
Alabama	27	23	85.2	41,534	40,449	97.4
Arkansas	20	18	90.0	21,257	20,912	98.4
Delaware	4	4	100.0	6,101	6,101	100.0
Florida	22	21	95.5	53,279	53,057	99.6
Georgia	49	43	87.8	46,406	44,426	95.7
Kentucky	39	30	76.9	38,265	34,316	89.7
Louisiana	23	21	91.3	48,462	47,673	98.4
Maryland	36	33	91.7	45,097	44,258	98.1
Mississippi	39	33	84.6	27,971	26,751	95.6
North Carolina	56	43	76.8	58,186	54,097	93.0
Oklahoma	32	30	93.8	51,919	50,144	96.6
South Carolina	29	24	82.8	26,574	25,073	94.4
Tennessee	47	42	89.4	54,030	52,092	96.4
Texas	99	84	84.8	166,290	155,305	93.4
Virginia	45	38	84.4	49,575	42,857	86.4
West Virginia	20	16	80.0	25,885	23,479	90.7
District of Columbia	23	16	69.6	36,008	34,560	96.0
WEST	262	232	88.5	582,859	566,968	97.3
Arizona	7	7	100.0	24,844	24,844	100.0
California	138	117	84.8	372,539	361,436	97.0
Colorado	21	20	95.2	34,796	34,472	99.1
Idaho	8	7	87.5	10,197	9,336	91.6
Montana	11	10	90.9	10,354	10,199	98.5
Nevada	1	1	100.0	2,352	2,352	100.0
New Mexico	9	8	88.9	14,435	14,028	97.2
Oregon	27	24	88.9	29,431	28,582	97.1
Utah	9	8	88.9	27,937	27,600	98.8
Washington	26	25	96.2	50,447	48,592	96.3
Wyoming	5	5	100.0	5,527	5,527	100.0
U. S. SERVICE SCHOOLS	7	4	57.1	9,335	2,115	22.7
OUTLYING PARTS	10	7	70.0	31,479	29,870	94.9
Alaska	1	1	100.0	2,770	2,770	100.0
Canal Zone	1	0	0	280	0	0
Guam	1	0	0	521	0	0
Hawaii	3	3	100.0	7,665	7,665	100.0
Puerto Rico	4	3	75.0	20,243	19,435	96.0

[1] Exclusive of U. S. Service Schools and Outlying Parts.

[2] This total exceeds the number of higher education institutions reported in the Education Directory 1957-58--Part 3, Higher Education because campuses of an institution have been reported separately for the current study.

Table 2.--Number and Percent of Buildings Occupied by Public Higher Education Institutions,

by Period of Initial Occupancy, Region, and State: December 31, 1957

Region and State	Total	Through 1899		1900-1909		1910-1919		1920-1929		1930-1939		1940-1949		1950-1957		Not known 1/	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
AGGREGATE UNITED STATES	22,815	801	3.5	917	4.0	1,383	6.1	2,295	10.1	2,657	11.6	9,253	40.5	4,945	21.7	564	2.5
UNITED STATES 2/	22,463	798	3.6	917	4.1	1,376	6.1	2,243	10.0	2,607	11.6	9,183	40.9	4,862	21.6	477	2.1
NORTHEAST	2,108	231	11.0	179	8.5	234	11.1	230	10.9	370	17.6	513	24.3	329	15.6	22	1.0
Connecticut	267	2	0.7	5	1.9	41	15.4	16	6.0	72	27.0	38	14.2	93	34.8	-	-
Maine	153	16	10.5	19	12.4	10	6.5	15	9.8	32	20.9	55	36.0	6	3.9	-	-
Massachusetts	147	21	14.3	15	10.2	22	15.0	10	6.8	9	6.1	24	16.3	33	22.5	13	8.8
New Hampshire	146	9	6.2	7	4.8	21	14.4	11	7.5	78	53.5	10	6.8	10	6.8	-	-
New Jersey	409	46	11.3	18	4.4	25	6.1	82	20.1	28	6.8	178	43.5	29	7.1	3	0.7
New York	464	36	7.8	46	9.9	90	19.4	47	10.1	52	11.2	76	16.4	116	25.0	1	0.2
Pennsylvania	411	76	18.5	61	14.8	18	4.4	34	8.3	84	20.4	104	25.3	29	7.1	5	1.2
Rhode Island	49	6	12.3	3	6.1	3	6.1	7	14.3	13	26.5	11	22.4	6	12.3	-	-
Vermont	62	19	30.6	5	8.1	4	6.5	8	12.9	2	3.2	17	27.4	7	11.3	-	-
NORTH CENTRAL	5,655	229	4.0	321	5.7	446	7.9	495	8.8	422	7.5	2,372	41.9	1,322	23.4	48	0.8
Illinois	490	25	5.1	32	6.5	42	8.6	47	9.6	29	5.9	83	16.9	232	47.4	-	-
Indiana	566	13	2.3	13	2.3	23	4.1	33	5.8	44	7.8	183	32.3	256	45.2	1	0.2
Iowa	843	22	2.6	31	3.7	37	4.4	38	4.5	59	7.0	616	73.1	40	4.7	-	-
Kansas	323	15	4.6	29	9.0	15	4.6	55	17.0	30	9.3	103	31.9	58	18.0	18	5.6
Michigan	1,080	26	2.4	31	2.9	81	7.5	69	6.4	42	3.9	482	44.6	333	30.8	16	1.5
Minnesota	266	19	7.1	38	14.3	54	20.3	39	14.7	26	9.7	47	17.7	39	14.7	4	1.5
Missouri	253	13	5.1	27	10.7	19	7.5	35	13.8	29	11.5	97	38.3	33	13.1	-	-
Nebraska	204	13	6.4	20	9.8	32	15.7	31	15.2	22	10.8	26	12.7	60	29.4	-	-
North Dakota	314	12	3.8	29	9.2	30	9.6	21	6.7	32	10.2	144	45.9	46	14.6	-	-
Ohio	495	31	6.2	31	6.2	44	8.9	79	16.0	41	8.3	184	37.2	85	17.2	-	-
South Dakota	374	14	3.7	16	4.3	22	5.9	27	7.2	35	9.4	166	44.4	89	23.8	5	1.3
Wisconsin	447	26	5.8	24	5.4	47	10.5	21	4.7	33	7.4	241	53.9	51	11.4	4	0.9
SOUTH	9,157	267	2.9	285	3.1	477	5.2	1,170	12.8	1,362	14.9	3,462	37.8	1,875	20.5	259	2.8
Alabama	812	28	3.4	27	3.3	37	4.6	76	9.3	141	17.4	407	50.1	89	11.0	7	0.9
Arkansas	361	3	0.8	12	3.3	27	7.5	43	11.9	76	21.1	111	30.7	89	24.7	-	-
Delaware	87	3	3.4	7	8.1	11	12.7	19	21.8	4	4.6	20	23.0	23	26.4	-	-
Florida	357	-	-	7	2.0	20	5.6	29	8.1	39	10.9	164	45.9	93	26.1	5	1.4
Georgia	465	34	7.3	31	6.7	24	5.2	54	11.6	107	23.0	110	23.7	83	17.8	22	4.7
Kentucky	305	20	6.6	20	6.6	11	3.6	48	15.7	42	13.7	100	32.8	64	21.0	-	-
Louisiana	559	-	-	7	1.3	10	1.8	135	24.1	94	16.8	189	33.8	124	22.2	-	-
Maryland	293	9	3.1	5	1.7	20	6.8	18	6.2	54	18.4	87	29.7	100	34.1	-	-
Mississippi	811	24	3.0	33	4.1	74	9.1	144	17.7	106	13.1	226	27.9	165	20.3	39	4.8
North Carolina	466	18	3.9	22	4.7	27	5.8	113	24.2	86	18.5	70	15.0	115	24.7	15	3.2
Oklahoma	894	4	0.4	23	2.6	34	3.8	93	10.4	92	10.3	476	53.2	148	16.6	24	2.7
South Carolina	871	22	2.5	15	1.7	17	2.0	27	3.1	70	8.0	402	46.2	177	20.3	141	16.2
Tennessee	322	8	2.5	1	0.3	31	9.6	69	21.4	39	12.1	101	31.4	73	22.7	-	-
Texas	1,515	3	0.2	17	1.1	69	4.6	116	7.7	226	14.9	714	47.1	365	24.1	5	0.3
Virginia	774	74	9.6	45	5.8	43	5.6	147	19.0	116	15.0	221	28.5	127	16.4	1	0.1
West Virginia	215	10	4.7	10	4.7	13	6.0	36	16.7	61	28.4	55	25.6	30	13.9	-	-
District of Columbia ..	50	7	14.0	3	6.0	9	18.0	3	6.0	9	18.0	9	18.0	10	20.0	-	-
WEST	5,543	71	1.3	132	2.4	219	3.9	348	6.3	453	8.2	2,836	51.1	1,336	24.1	148	2.7
Arizona	226	2	0.9	9	4.0	15	6.6	13	5.8	33	14.6	96	42.5	57	25.2	1	0.4
California	2,014	9	0.4	26	1.3	59	2.9	130	6.5	180	8.9	882	43.8	707	35.1	21	1.1
Colorado	632	20	3.2	16	2.5	32	5.1	44	7.0	61	9.6	371	58.7	88	13.9	-	-
Idaho	221	-	-	15	6.8	6	2.7	18	8.1	18	8.1	109	49.4	55	24.9	-	-
Montana	493	6	1.2	8	1.6	8	1.6	25	5.1	15	3.1	289	58.6	142	28.8	-	-
Nevada	28	6	21.4	4	14.3	4	14.3	4	14.3	1	3.6	5	17.8	4	14.3	-	-
New Mexico	347	2	0.6	10	2.9	16	4.6	26	7.5	49	14.1	149	42.9	95	27.4	-	-
Oregon	332	8	2.4	8	2.4	28	8.4	28	8.4	23	6.9	204	61.5	33	10.0	-	-
Utah	314	7	2.2	12	3.8	19	6.1	13	4.1	28	8.9	198	63.1	37	11.8	-	-
Washington	801	10	1.2	21	2.6	27	3.4	38	4.7	42	5.3	458	57.2	80	10.0	125	15.6
Wyoming	135	1	0.7	3	2.2	5	3.7	9	6.7	3	2.2	75	55.6	38	28.2	1	0.7
U. S. SERVICE SCHOOLS.	84	3	3.6	-	-	2	2.4	28	33.3	2	2.4	11	13.1	38	45.2	-	-
OUTLYING PARTS	268	-	-	-	-	5	1.9	24	8.9	48	17.9	59	22.0	45	16.8	87	32.5
Alaska	23	-	-	-	-	-	-	1	4.3	3	13.1	12	52.2	7	30.4	-	-
Canal Zone	(3/)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guam	(3/)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	134	-	-	-	-	2	1.5	11	8.2	9	6.7	8	6.0	17	12.7	87	64.9
Puerto Rico	111	-	-	-	-	3	2.7	12	10.8	36	32.4	39	35.2	21	18.9	-	-

1/ Reported by the institution as "not known."

2/ Exclusive of U. S. Service Schools and Outlying Parts.

3/ Not reported.

Table 3.--Number and Percent of Buildings Occupied by Private Higher Education Institutions, by Period of Initial Occupancy, Region, and State: December 31, 1957

Region and State	Total	Through 1899		1900-1909		1910-1919		1920-1929		1930-1939		1940-1949		1950-1957		Not known[1/]	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
AGGREGATE UNITED STATES	18,565	2,010	10.8	1,602	8.6	1,754	9.4	2,757	14.8	1,924	10.4	4,541	24.5	3,483	18.8	494	2.7
UNITED STATES[2/]	18,548	2,009	10.8	1,602	8.6	1,754	9.5	2,754	14.8	1,923	10.4	4,538	24.5	3,474	18.7	494	2.7
NORTHEAST	5,916	950	16.1	626	10.6	510	8.6	806	13.6	663	11.2	1,218	20.6	954	16.1	189	3.2
Connecticut	307	22	7.2	16	5.2	21	6.8	33	10.7	88	28.7	47	15.3	49	16.0	31	10.1
Maine	134	30	22.4	17	12.7	7	5.2	12	8.9	11	8.2	17	12.7	25	18.7	15	11.2
Massachusetts	1,264	220	17.4	143	11.3	154	12.2	189	15.0	137	10.8	158	12.5	198	15.7	65	5.1
New Hampshire	256	20	7.8	16	6.3	14	5.5	63	24.6	17	6.6	101	39.4	25	9.8	-	-
New Jersey	454	59	13.0	37	8.1	28	6.2	63	13.9	7	17.0	92	20.2	83	18.3	15	3.3
New York	1,604	229	14.3	167	10.4	92	5.7	202	12.6	156	9.7	486	30.3	250	15.6	22	1.4
Pennsylvania	1,521	338	22.2	202	13.3	166	10.9	205	13.5	145	9.5	216	14.2	235	15.5	14	0.9
Rhode Island	211	23	10.9	19	9.0	14	6.6	24	11.4	24	11.4	58	27.5	49	23.2	-	-
Vermont	165	9	5.5	9	5.5	14	8.5	15	9.1	8	4.8	43	26.1	40	24.2	27	16.3
NORTH CENTRAL	4,469	511	11.4	478	10.7	529	11.8	725	16.2	360	8.1	1,020	22.8	735	16.5	111	2.5
Illinois	1,116	133	11.9	104	9.3	125	11.2	171	15.3	78	7.0	341	30.6	138	12.4	26	2.3
Indiana	440	42	9.5	61	13.9	35	8.0	54	12.3	41	9.3	129	29.3	71	16.1	7	1.6
Iowa	461	46	10.0	47	10.2	68	14.7	58	12.6	19	4.1	123	26.7	94	20.4	6	1.3
Kansas	229	24	10.5	16	7.0	34	14.9	39	17.0	28	12.2	39	17.0	47	20.5	2	0.9
Michigan	215	35	16.3	38	17.7	25	11.6	49	22.8	20	9.3	17	7.9	28	13.0	3	1.4
Minnesota	308	39	12.7	21	6.8	41	13.3	32	10.4	19	6.2	56	18.2	33	10.7	67	21.7
Missouri	533	31	5.8	55	10.3	55	10.3	136	25.5	51	9.6	109	20.5	96	18.0	-	-
Nebraska	156	16	10.3	17	10.9	28	17.9	26	16.7	11	7.1	28	17.9	30	19.2	-	-
North Dakota	29	-	-	-	-	8	27.6	3	10.3	2	6.9	12	41.4	4	13.8	-	-
Ohio	601	100	16.6	76	12.7	66	11.0	121	20.1	57	9.5	86	14.3	95	15.8	-	-
South Dakota	103	5	4.9	10	9.7	13	12.6	13	12.6	6	5.8	34	33.0	22	21.4	-	-
Wisconsin	278	40	14.4	33	11.9	31	11.1	23	8.3	28	10.1	46	16.5	77	27.7	-	-
SOUTH	6,117	471	7.7	416	6.8	570	9.3	898	14.7	705	11.5	1,674	27.4	1,216	19.9	167	2.7
Alabama	325	26	8.0	39	12.0	27	8.3	49	15.1	30	9.2	59	18.2	76	23.4	19	5.8
Arkansas	104	8	7.7	9	8.7	2	1.9	18	17.3	11	10.6	28	26.9	28	26.9	-	-
Delaware	10	3	30.0	-	-	1	10.0	5	50.0	-	-	1	10.0	-	-	-	-
Florida	306	13	4.3	8	2.6	9	3.0	27	8.8	38	12.4	132	43.1	76	24.8	3	1.0
Georgia	580	49	8.4	23	4.0	37	6.4	85	14.7	123	21.2	119	20.5	97	16.7	47	8.1
Kentucky	317	24	7.6	21	6.6	19	6.0	64	20.2	25	7.9	94	29.6	68	21.5	2	0.6
Louisiana	227	10	4.4	12	5.3	19	8.4	36	15.8	20	8.8	94	41.4	31	13.7	5	2.2
Maryland	244	37	15.2	20	8.2	31	12.7	37	15.2	20	8.2	42	17.2	57	23.3	-	-
Mississippi	237	15	6.3	11	4.6	21	8.9	25	10.6	35	14.8	110	46.4	20	8.4	-	-
North Carolina	680	37	5.4	26	3.8	52	7.7	92	13.5	128	18.8	138	20.3	197	29.0	10	1.5
Oklahoma	240	-	-	4	1.7	9	3.8	18	7.5	32	13.3	119	49.6	58	24.1	-	-
South Carolina	306	26	8.5	31	10.1	31	10.1	48	15.7	28	9.2	84	27.5	54	17.6	4	1.3
Tennessee	620	49	7.9	35	5.6	63	10.2	116	18.7	48	7.7	159	25.7	98	15.8	52	8.4
Texas	951	16	1.7	36	3.8	135	14.2	97	10.2	86	9.0	348	36.6	222	23.3	11	1.2
Virginia	679	125	18.4	118	17.4	72	10.6	142	20.9	46	6.8	72	10.6	101	14.9	3	0.4
West Virginia	94	7	7.5	11	11.7	13	13.8	18	19.2	2	2.1	23	24.5	10	10.6	10	10.6
District of Columbia ..	197	26	13.2	12	6.1	29	14.7	21	10.7	33	16.7	52	26.4	23	11.7	1	0.5
WEST	2,046	77	3.8	82	4.0	145	7.1	325	15.9	195	9.5	626	30.6	569	27.8	27	1.3
Arizona	37	-	-	-	-	-	-	-	-	-	-	16	43.2	21	56.8	-	-
California	1,018	43	4.2	31	3.1	65	6.4	221	21.7	136	13.4	317	31.1	205	20.1	-	-
Colorado	138	13	9.4	15	10.9	13	9.4	9	6.5	5	3.6	40	29.0	18	13.1	25	18.1
Idaho	37	-	-	3	8.1	10	27.0	1	2.7	1	2.7	19	51.4	3	8.1	-	-
Montana	26	-	-	4	15.4	8	30.8	3	11.5	3	11.5	3	11.5	5	19.3	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	37	-	-	-	-	-	-	-	-	-	-	37	100.0	-	-	-	-
Oregon	231	4	1.7	14	6.1	33	14.3	41	17.7	26	11.3	62	26.8	49	21.2	2	0.9
Utah	294	2	0.7	4	1.4	5	1.7	29	9.9	8	2.7	53	18.0	193	65.6	-	-
Washington	228	15	6.6	11	4.8	11	4.8	21	9.2	16	7.0	79	34.7	75	32.9	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OUTLYING PARTS	17	1	5.9	-	-	-	-	3	17.6	1	5.9	3	17.6	9	53.0	-	-
Hawaii	5	1	20.0	-	-	-	-	3	60.0	-	-	1	20.0	-	-	-	-
Puerto Rico	12	-	-	-	-	-	-	-	-	1	8.3	2	16.7	9	75.0	-	-

[1/] Reported by the institution as "not known."

[2/] Exclusive of Outlying Parts.

Table 4.--Estimated Value of Buildings[1] Owned and Occupied by Higher Education Institutions,

by Type of Control, Region, and State: December 31, 1957

/In thousands of dollars/

Region and State	PUBLIC AND PRIVATE			PUBLIC				PRIVATE			
	Total respondents	Respondents submitting estimated value	Total Amount (dollars)	Total respondents	Respondents submitting estimated value	Amount (dollars)	Percent of Total Amount	Total respondents	Respondents submitting estimated value	Amount (dollars)	Percent of Total Amount
1	2	3	4	5	6	7	8	9	10	11	12
AGGREGATE UNITED STATES.	1,664	1,493	9,199,118	639	550	4,738,487	51.5	1,025	943	4,460,631	48.5
UNITED STATES[2]	1,653	1,484	9,137,701	632	544	4,678,808	51.2	1,021	940	4,458,893	48.8
NORTHEAST	413	380	2,771,477	102	89	581,753	21.0	311	291	2,189,724	79.0
Connecticut	22	20	327,288	7	7	46,805	14.3	15	13	280,483	85.7
Maine	17	15	50,816	7	7	22,254	43.8	10	8	28,562	56.2
Massachusetts	71	69	531,561	14	13	59,868	11.3	57	56	471,693	88.7
New Hampshire	9	9	60,885	4	4	24,645	40.5	5	5	36,240	59.5
New Jersey	32	31	223,726	11	11	71,656	32.0	21	20	152,070	68.0
New York	138	124	823,534	39	30	193,814	23.5	99	94	629,720	76.5
Pennsylvania	106	95	655,134	16	13	136,215	20.8	90	82	518,919	79.2
Rhode Island	8	7	55,644	1	1	9,362	16.8	7	6	46,282	83.2
Vermont	10	10	42,889	3	3	17,134	39.9	7	7	25,755	60.1
NORTH CENTRAL	489	401	2,566,905	176	128	1,532,179	59.7	313	273	1,034,726	40.3
Illinois	78	57	583,879	20	8	236,479	40.5	58	49	347,400	59.5
Indiana	44	39	257,517	14	9	143,781	55.8	30	30	113,736	44.2
Iowa	45	32	134,401	16	5	58,332	43.4	29	27	76,069	56.6
Kansas	41	34	128,316	19	15	99,671	77.7	22	19	28,645	22.3
Michigan	46	35	460,736	19	14	396,908	86.1	27	21	63,828	13.9
Minnesota	29	25	223,661	11	8	157,849	70.6	18	17	65,812	29.4
Missouri	56	50	186,713	14	12	82,22[illegible]	44.0	42	38	104,488	56.0
Nebraska	22	20	65,915	10	9	44,[illegible]79	67.3	12	11	21,536	32.7
North Dakota	12	11	35,065	11	10	33,063	94.3	1	1	2,002	5.7
Ohio	50	45	294,358	9	7	152,953	52.0	41	38	141,405	48.0
South Dakota	16	12	31,919	7	7	22,340	70.0	9	5	9,579	30.0
Wisconsin	50	41	164,425	26	24	104,199	63.4	24	17	60,226	36.6
SOUTH	519	483	2,471,100	221	204	1,604,969	64.9	298	279	866,131	35.1
Alabama	23	23	96,588	10	10	60,844	63.0	13	13	35,744	37.0
Arkansas	18	17	67,271	9	9	54,268	80.7	9	8	13,003	19.3
Delaware	4	4	15,239	2	2	14,295	93.8	2	2	944	6.2
Florida	21	21	65,379	7	7	25,009	38.3	14	14	40,370	61.7
Georgia	43	43	152,372	20	20	94,844	62.2	23	23	57,528	37.8
Kentucky	30	26	103,517	9	8	73,357	70.9	21	18	30,160	29.1
Louisiana	21	19	196,460	11	11	133,002	67.7	10	8	63,458	32.3
Maryland	33	31	180,748	12	11	98,570	54.5	21	20	82,178	45.5
Mississippi	33	28	86,610	21	16	71,325	82.4	12	12	15,285	17.6
North Carolina	43	38	249,813	15	11	138,457	55.4	28	27	111,356	44.6
Oklahoma	30	25	138,768	21	18	123,960	89.3	9	7	14,808	10.7
South Carolina	24	23	118,029	6	6	88,995	75.4	18	17	29,034	24.6
Tennessee	42	40	168,749	10	9	84,254	49.9	32	31	84,495	50.1
Texas	84	81	457,[illegible]02	45	44	320,226	70.1	39	37	136,876	29.9
Virginia	38	36	[illegible]74,834	11	11	115,653	66.2	27	25	59,181	33.8
West Virginia	16	16	90,950	10	10	76,837	84.5	6	6	14,113	15.5
District of Columbia ...	16	12	108,671	2	0	31,073	28.6	14	11	77,598	71.4
WEST	232	220	1,328,219	134	124	959,907	72.3	98	96	368,312	27.7
Arizona	7	7	51,472	5	5	50,693	98.5	2	2	779	1.5
California	117	111	559,608	63	58	398,496	71.2	54	53	161,112	28.8
Colorado	20	20	108,921	13	13	86,041	79.0	7	7	22,880	21.0
Idaho	7	6	34,305	5	4	32,054	93.4	2	2	2,251	6.6
Montana	10	8	89,007	7	6	84,560	95.0	3	2	4,447	5.0
Nevada	1	1	9,486	1	1	9,486	100.0	0	-	-	-
New Mexico	8	8	34,672	7	7	33,204	95.8	1	1	1,468	4.2
Oregon	24	24	206,342	9	9	93,635	45.4	15	15	112,707	54.6
Utah	8	8	49,471	6	6	33,003	66.7	2	2	16,468	33.3
Washington	25	24	165,213	13	12	119,013	72.0	12	12	46,200	28.0
Wyoming	5	3	19,722	5	3	19,722	100.0	0	-	-	-
U. S. SERVICE SCHOOLS .	4	3	25,765	4	3	25,765	100.0	0	-	-	-
OUTLYING PARTS	7	6	35,652	3	3	33,914	95.1	4	3	1,738	4.9
Alaska	1	1	5,525	1	1	5,525	100.0	0	-	-	-
Canal Zone	(3/)	(3/)	(3/)	(3/)	(3/)	(3/)	-	0	-	-	-
Guam	(3/)	(3/)	(3/)	(3/)	(3/)	(3/)	-	0	-	-	-
Hawaii	3	2	13,568	1	1	13,438	99.0	2	1	130	1.0
Puerto Rico	3	3	16,559	1	1	14,951	90.3	2	2	1,608	9.7

---

[1] Excludes leased, rented, and other nonowned buildings.

[2] Exclusive of U. S. Service Schools and Outlying Parts.

[3] Not reported.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University
Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

March 1962 OE-51004-2

SCIENCE FACILITIES PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

Through the "Inventory of College and University Physical Facilities, December 31, 1957" (part 3 of a 5-part survey[1] and now in process), several listings of institutional buildings reported as occupied for the first time in the calendar decade 1948-57 were compiled. Since requests for such information from higher education institutions indicate that interest in construction is great in the category of science buildings, this release presents the science building listing (list A), which follows. Buildings are identified by name as reported by the institution, and dates of initial occupancy are shown. Other listings of buildings will be offered through this series. (See table 1 of OE-51004-1, Inventory of Higher Education Physical Facilities, for Inventory response data by State; 84.9 percent of the institutions in the aggregate United States participated, representing 95.5 percent of the fall 1957 enrollment.)

Table 1 shows regional distribution, for the contiguous States, of instructional laboratories situated in the science buildings reported in list A: (1) by number and size, (2) by capacity in student stations, and (3) by student station sizes. The assignable area of an instructional laboratory includes not only the laboratory itself but also any auxiliary space devoted exclusively to the functions of the laboratory. Assignable area is measured from the inside walls at floor level. A student station is considered to be a place at which a student may be located--for example, a laboratory table or a lecture-room seat. The area of a laboratory student station is therefore the assignable area required to provide all accommodations necessary for one student.

A bibliography on science planning facilities is included as list B of this release.

The Physical Facilities Series is designed to present, as it becomes available, preliminary and other information concerning college and university physical facilities. A separate Finance Series presents information on matters related to higher education finance. Data can thus be disseminated prior to publication of the complete report. The first in the Physical Facilities Series was OE-51004-1: Inventory of Higher Education Physical Facilities.

---

[1] College and University Facilities Survey, begun in 1956 by the Office of Education. Part 1 published in 1959; part 2 published in 1960; parts 3 and 4 begun in 1958 and 1961, respectively, now in process.

Table 1.--Number, assignable area, laboratory size, laboratory capacity, and student station size of instructional laboratories in science buildings[1] reported to have been constructed during the 1948-57 calendar decade by higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region: Contiguous States

Instructional laboratories	Contiguous States	Region			
		Northeast[2]	North Central[3]	South[4]	West[5]
a. Number of laboratories	2,729	431	648	1,051	599
b. Total assignable area (sq.ft.)[6]	2,532,400	430,800	579,600	918,500	603,500
c. Number of student stations	63,341	9,065	15,446	24,497	14,333
LABORATORY SIZE (sq.ft.)					
d. Mean (line b ÷ line a)	928	1,000	894	874	1,008
e. Median	873	885	849	805	983
f. Interquartile range	686-1,098	782-1,220	668-1,076	652-948	777-1,198
LABORATORY CAPACITY (student stations)					
g. Mean (line c ÷ line a)	23	21	24	23	24
h. Median	22	20	21	22	24
i. Interquartile range	16-27	14-26	13-25	17-27	16-27
STUDENT STATION SIZE (sq.ft.)					
j. Mean (line b ÷ line c)	40.0	47.5	37.5	37.5	42.1
k. Median	42.0	48.1	42.1	39.9	46.7
l. Interquartile range	33.5-52.1	34.9-70.8	33.8-54.8	32.1-44.7	34.8-53.1

[1] Exclusive of 14 science buildings for which incomplete data were received.

[2] Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

[3] Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

[4] Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, District of Columbia.

[5] Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

[6] Includes all of the auxiliary space devoted to the functions of the laboratory.

List A.--Science Buildings Reported To Have Been Occupied for the First Time During the 1948-57 Calendar Decade: Aggregate United States

Note: Code numbers in parentheses indicate type of research for which facilities are included: 31, astronomy; 32, biology; 33, chemistry; 35, physics; 36, other physical sciences.

State and institution	Name of building	Year
Alabama		
Athens College	Waters Hall (32)	1957
Auburn University	Animal Disease Research Laboratory (32)	1955
	Burke Dairy Laboratory (32)	1952
	Coccidiosis Laboratory (32)	1952
Howard College	Biology Building	1957
The Marion Institute	Chemistry Building	1953
Spring Hill College	Chemistry Building	1957
Tuskegee Institute	Carver Laboratories (33)	1950
University of Alabama	Physics Building	1949
University of Alabama, Medical Center	Basic Science Building	1951
Arizona		
Arizona State College, Flagstaff	Science Building	1949
Arizona State University	Science Building	1950
Eastern Arizona Junior College	Science Building	1955
University of Arizona	Biological Science (32)	1956
Arkansas		
Agricultural, Mechanical and Normal College	Science Building	1950
John Brown University	Science Hall	1957
Ouachita Baptist College	Science Building	1951
Philander Smith College	Science Hall (35)	1952
University of Arkansas	Physical Science Laboratory (36)	1951
California		
Bakersfield College	Science and Engineering Building	1955
California State Polytechnic College	Science Building	1956
	Science and Classrooms	1955
Citrus Junior College	Chemistry Building	1953
Claremont Graduate School	Baxter Science Laboratories	1953
Coalinga College	Geology and Biology Building	1957
	Physics and Chemistry Building	1957
College of Marin	Science Building	1949
El Camino College	Chemistry Building	1955
	Life Science Building	1951
	Physics Building	1955
Fresno State College	Science Building-Wing C, D, E, F	1955
Fullerton Junior College	Science Building	1955
Humboldt State College	Science Building	1953
Long Beach City College	Life Science Building	1951
Long Beach State College	Science Building #2	1956
Los Angeles Pierce College	Anatomy, Muro Biology Building	1955
Monterey Peninsula College	Science Building	1948
Mount San Antonio College	Life Science Building	1953
	Physical Science Building	1949
Oceanside-Carlsbad College	Science Building	1956
Orange Coast College	Science Building	1957
Pacific Union College	Chemistry Building	1950
Reedley College	Science Building-Wing #2	1957
Sacramento State College	Chemistry Building	1953
	Life Science Building	1957
	Physical Science Building	1953
	Physics Building	1953
San Diego State College	Physics Building	1953
San Francisco State College	Science Building	1952
Shasta College	Science Building	1950
Stanford University	Electronics Research (35)	1951
	High Energy Laboratory (35)	1949
	Microwave Laboratory (35)	1949
	Organic Research Laboratory (35)	1949
	Physics Lecture Hall	1957
University of California, Berkeley Campus	Building HHSE 6 (32)	1950
	LT Laboratory (33)	1954
	BV Laboratory (32)	1952
	Building GHSE 11 (32)	1950
	Building GHSE 12 (32)	1950
University of California, Los Angeles Campus	Geology-Chemistry Building	1952

State and institution	Name of building	Year
California--con.		
University of California, Los Angeles Campus--con.	Life Science Building	1955
	Life Science-Plant Pathology Building	1950
University of Redlands	Hornby Hall	1957
University of Southern California	Aeronautics Building (36)	1948
	Bacteriology Building (32)	1948
	Chemical Building Wing	1950
	Navy Research Building (36)	1948
	Tlargi (33)	1955
Ventura College	Biology Building V	1955
	Chemistry Building Unit M	1955
Colorado		
University of Colorado	Isotopes Laboratory	1949
	Lester (Physics) Building	1950
University of Denver	Building Dri-5 (33)	1948
Connecticut		
Connecticut College	Hale Laboratory (33)	1954
University of Connecticut, Hartford	Science Building	1953
Yale University	Accelerator Building #1 (35)	1953
	Accelerator Building #2 (35)	1955
	Biological Laboratory (32)	1951
	Gibbs Laboratory (36)	1955
	Observatory-Bethany (31)	1957
Delaware		
University of Delaware, Lewes	Bayside Marine Biological Laboratory (2 buildings)	1954
District of Columbia		
Howard University	Biology-Greenhouse Building	1956
Florida		
Chipola Junior College	Natural Science Building	1957
Florida Agricultural and Mechanical University	Jones Hall	1955
Pensacola Junior College	Science Building	1957
St. Petersburg Junior College	Science Building	1956
University of Miami	Agassiz (Virginia Key) (36)	1953
	Marine Laboratory (Main Building) (36)	1956
Georgia		
Abraham Baldwin Agricultural College	Science Building	1954
Agnes Scott College	Bradley Observatory	1949
	Campbell Science Hall	1951
Albany State College	Science Building	1954
Atlanta University	Chemistry Building	1953
Emory University	Biology Building	1950
	Biology Greenhouse (32)	1955
	Geology Building	1950
Middle Georgia College	Science Building	1948
Morehouse College	Chemistry Building	1953
North Georgia College	Science Hall	1948
Hawaii		
University of Hawaii	Chemistry Hall (Bilger Hall)	1952
Illinois		
Blackburn College	F. W. Olin Science Building	1957
Millikin University	Scoville Science Hall	1953
Northern Illinois University	Science Building	1950
St. Xavier College	Science Building #4	1956
Southern Illinois University	Life Science Building	1954
	Life Science Animal House (36)	1954
	Life Science Greenhouses (36)	1951
University of Chicago	Accelerator Building (35)	1949
	Low Temperature Laboratory (35)	1957
	Research Institutes Building	1950
University of Illinois	East Chemistry Building	1950
Western Illinois University	Science Hall	1953
Indiana		
Indiana University, Bloomington Campus	Cosmic Ray Laboratory (35)	1956
	Geology Shop (35)	1956
	Jordan Hall (32)	1955
	Radioactive Isotope Laboratory (33)	1951

State and institution	Name of Building	Year
Indiana--con.		
Indiana University, Indianapolis Medical Campus	Laboratory Science Building	1951
St. Mary's College	St. Mary's Science Hall	1954
University of Notre Dame	Biology Greenhouse (32)	1950
	Lobund (32)	1949
	Nieuwland Science Building	1953
Iowa		
Drake University	Harvey-Ingham Science Building	1949
Graceland College	Science Hall	1954
Grinnell College	Science Hall	1952
Morningside College	Jones Hall of Science	1948
	O'Donoghue Observatory	1951
Simpson College	Carver Science Hall	1956
Kansas		
Bethany College	Nelson Science Hall	1957
College of Emporia	Mabee Science Hall	1957
Kansas State University of Agriculture and Applied Science	Bushnell Hall (32)	1949
Southwestern College	Mossman Hall of Science	1951
University of Kansas	Malott Hall (33)	1954
	Radioactive Isotope Research Laboratory	1951
Kentucky		
Bellarmine College	Science Building	1950
Bethel College	Science Building	1948
Murray State College	Science Building	1950
Louisiana		
Centenary College	Science Hall	1949
McNeese State College	Science Building	1956
Xavier University	Science Building	1948
Maine		
Bowdoin College	Parker Cleaveland Hall (33)	1952
Colby College	Chemistry Building (33)	1950
	Life Science Building	1952
Maryland		
Hood College	Lillian Brown Hodson Science Hall	1957
University of Maryland	Chemistry Building	1951
	Engine Research Laboratory (35)	1955
Massachusetts		
Amherst College	Biology Greenhouse (32)	1952
Bradford Durfee College of Technology	Leslie B. Coombs Science Hall	1952
Brandeis University	Kalman Science Building #65 (33)	1956
Emmanuel College	Science Building	1950
Harvard University	Gordon McKay Laboratory of Applied Science (35)	1952
Mount Holyoke College	Cleveland Hall and Carr Laboratories	1954
Smith College	Research Greenhouse (36)	1952
University of Massachusetts	Animal Isolation Building (32)	1951
	Chemistry Laboratory Addition (33)	1957
	Elm Disease Control Laboratory (32)	1948
	Paige Laboratory (32)	1949
Michigan		
Ferris Institute	Science Building	1955
Flint Junior College	Mott Arts and Science	1955
Henry Ford Community College	Science Building	1955
Kalamazoo College	Upton Science Hall	1956
Michigan College of Mining and Technology	Civil and Geology Building	1957
Michigan State University of Agriculture and Applied Science	Experimental Animal House (32)	1940
	Physics and Mathematics Building	1949
	Natural Science Building	1948
Minnesota		
Hamline University	Drew Science Building	1951
St. Mary's College	Science Building	1954
University of Minnesota, Duluth Branch	Science Building	1950
	Seismograph Building (35)	1953
Mississippi		
Itawamba Junior College	Science Building	1957

State and institution	Name of building	Year
Mississippi--con.		
Jackson State College	Science Building	1956
Mississippi State College for Women	Hooper Science Hall	1955
Mississippi State University	Chemical Engineering Building	1956
Tougaloo Southern Christian College	Chemistry Building	1948
Missouri		
Hannibal-LaGrange College	Muir Science Hall	1949
Northeast Missouri State Teachers College	Science Hall (32)	1955
St. Louis University	Carr Lane Building	1955
University of Missouri, Columbia	Schlundt Hall Annex	1950
Washington University	Louderman Hall (33)	1951
Westminster College	Biology Building	1948
Montana		
Carroll College	Science Building	1957
Eastern Montana College of Education	Science Building	1948
Montana School of Mines	Physics-Petroleum Building	1953
Montana State College	Isotope Laboratory (35)	1953
Nebraska		
Creighton University	Chemistry Building	1949
Hastings College	Science Hall	1955
University of Nebraska	Botany Greenhouse (32)	1950
New Jersey		
Fairleigh Dickinson University, Teaneck Campus	Science (and Dental) Building	1956
Princeton University	Building A-Matterhorn Laboratory (35)	1951
Rutgers, The State University	Microbiology (32)	1953
Seton Hall University, South Orange	Science Building	1953
Shelton College	Science Building	1953
New Mexico		
Eastern New Mexico University	Science Building	1949
New Mexico Highlands University	Science Hall	1956
New Mexico State University of Agriculture, Engineering and Science	Chemistry Building	1956
	Insectary (32)	1950
	Physical Science Laboratory Annex (35)	1949
New Mexico Western College	Science Building	1957
University of New Mexico	Biology Building	1951
	Chemistry Building	1952
	Geology Building	1953
	Physics-Meteoritics Building (35)	1952
	Research Center (36)	1948
New York		
Broome Technical Community College	Science Building	1957
City College of The City University of New York	Chemical Engineering Building	1949
Clarkson College of Technology	Physics Building	1949
Columbia University	Pegram Laboratory (35)	1955
Cornell University	Ornithology Laboratory (32)	1956
LeMoyne College	Science Building	1948
Manhattan College	Hayden Science Hall	1953
Rensselaer Polytechnic Institute	Blaw-Knox I and II (35)	1948
	Sampson Lodge (31)	1956
Syracuse University	Lubin Hall	1955
University of Buffalo	Carbon Research Building (36)	1957
University of Rochester	Cyclotron Building (35)	1948
North Carolina		
Agricultural and Technical College of North Carolina	Hines Hall (33)	1950
Atlantic Christian College	Moye Science Hall	1956
Chowan College	Green Science Building	1956
Duke University	Physics Building	1950
Elizabeth City State Teachers College	Science Hall	1952
North Carolina College at Durham	Biology Building	1956
State College of Agriculture and Engineering of the University of North Carolina	Robertson Pulp and Paper Laboratory (33)	1956
Wake Forest College	Science Building (33)	1956
Ohio		
Central State College	Banneker Science Building	1950
The Ohio State University	Physics Building	1951

State and institution	Name of building	Year
Oklahoma		
Bethany-Nazarene College	Science Hall	1950
Northeastern State College	Science Building	1956
Phillips University	Science Hall	1949
University of Oklahoma, Norman	Gould Hall (Geology)	1951
	Insectary (32)	1953
	Plant Science Greenhouse (32)	1952
	Research Institute	1948
The University of Tulsa	Petroleum Science Building	1950
Oregon		
Oregon State College	Cyclotron Building	1949
Reed College	Chemistry Building	1948
University of Oregon, Eugene	Science Hall	1949
Pennsylvania		
Bucknell University	Olin Science Building	1955
College Misericordia	Hafey Memorial Science Hall	1956
Drexel Institute of Technology	Basic Science Building	1956
Duquesne University	Graduate Chemistry Building	1948
Gwynedd-Mercy Junior College	Science Laboratory	1951
Hahnemann Medical College and Hospital	Mary Bailey Foundation	1955
Lafayette College	Olin Hall of Science	1956
Lock Haven State College	Ulmer Hall	1952
Lycoming College	Science Building	1957
Mansfield State College	Science Building	1949
Pennsylvania State University	Mineral Science	1949
	Nittany Heat and Stoker Laboratory (36)	1948
Rosemont College	Science Hall	1951
University of Pennsylvania	Betatron Laboratory Building (35)	1948
	Physical Sciences Building (35)	1952
University of Pittsburgh	Clapp Hall	1957
University of Scranton	Loyola Hall of Science	1956
Wilkes College	Stark Hall	1957
Puerto Rico		
University of Puerto Rico	Natural Science Building	1949
Rhode Island		
Brown University	Engineering Research Laboratory (35)	1948
University of Rhode Island	Pastore Laboratory	1952
South Carolina		
Clemson Agricultural College	Chemistry Building	1952
Coker College	William Chambers Coker Science Building	1951
Erskine College	Reid Science Hall	1949
Tennessee		
Knoxville College	A. K. Stewart Science Hall	1957
Texas		
Agricultural and Mechanical College of Texas	Agronomy Field Laboratory (36)	1952
	Biological Science Building	1950
	Entomology Laboratory (36)	1950
	Horticulture Greenhouse (36)	1955
	Biochemistry Laboratory (32)	1957
Howard County Junior College	Science Building I	1951
	Science Building II	1957
Huston-Tillotson College	Science Building	1955
Incarnate Word College	Science Hall	1949
Lamar State College of Technology	Biology-Geology Building	1957
Midwestern University	Geology Building	1949
Odessa College	Science Building	1949
St. Mary's University of San Antonio	Garni Science Building	1952
San Antonio College	Science Building	1953
Southern Methodist University	Fondren Science Building	1949
Southwestern University	Fondren Science Hall	1954
Texas Christian University	Science Building	1952
Texas Technological College	Science Building	1951
Texas Western College	Science Building	1950
Trinity University	Science Building	1953
University of Dallas	Science Building	1956
University of St. Thomas	Science Building	1948

State and institution	Name of building	Year
Texas--con.		
University of Texas, Austin	Balcones Research Center	
	Alloy Plant (32)	1949
	Carbonation (36)	1949
	Dolomite Service (36)	1949
	Mag. Cells (32)	1949
	Mag. Cells Service (32)	1949
	Rectifier and Switch-Gear (35)	1949
	Defense Research Laboratory (36)	1949
	Experimental Science Building	1952
Wayland Baptist College	Science Building	1953
Utah		
Brigham Young University	Eyring Science Center	1950
Utah State University of Agriculture and Applied Science	Research Shop (36)	1951
Weber College	Life Science Building	1952
	Physical Science	1952
Westminster College	Science Hall	1949
Vermont		
Norwich University	Cabot Science Hall	1952
State Teachers College, Castleton	Science Building	1954
Virginia		
Bridgewater College	Bowman Hall	1952
Emory and Henry College	Science Building	1956
Longwood College	Greenhouse (32)	1951
	Stevens Hall	1951
Madison College	Burruss Science Hall and Greenhouse	1953
Richmond Professional Institute	Science Building	1950
University of Virginia	Physics Building	1953
	State Geological Survey Building (36)	1950
Washington		
Grays Harbor College	Science Building	1957
Olympic College	Science Building	1954
Walla Walla College	Biology Building	1948
West Virginia		
Concord College	Science Hall	1951
Marshall University	Science Building	1951
Potomac State College of West Virginia University	Science Hall	1949
West Virginia State College	Science Building	1952
West Virginia University	Brooks Hall (35)	1950
	Physics Building	1952
Wisconsin		
Edgewood College of the Sacred Heart	Mazzuchelli Science Building	1955
The Institute of Paper Chemistry	General Activities Building (36)	1954
	Genetics Building (32)	1954
Marquette University	Science Annex (32)	1950
University of Wisconsin, Madison	Bacteriology Building	1954
	Chemical Engineering Building	1951
	Enzyme Institute (32)	1949
	Genetics Research Laboratory (32)	1957

List B.--Science Facilities Planning Bibliography

AEC Central Research Laboratory. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 43-48.

Alexander, Robert E. Designing for Science at Orange Coast College. *American School and University*, 31:77-84, 1959-1960.

________. Science: Facility Design. In *New Dimensions in Junior College Planning*. Stanford, Calif.: School Planning Laboratory, School of Education, Stanford University, 1958. p. 90-97.

Bardwell, E. P. Lighting the Laboratory Table. *College and University Business*, 24: 6, 42-43, June 1958.

Bilger, L. N., *and* E. M. Bilger. New Chemical Laboratory of the University of Hawaii. *Journal of Chemical Education*, 31:300-302, June 1954.

Bogne, Olaf. Science Building for Small College and Theological Seminary. *College and University Business*, 8:3, 37-39, March 1950.

Braestrup, Carl B., *and* Edith Quimby. Hospital Radioisotope Laboratories. *Progressive Architecture*, 33:84-87, December 1952.

Brazier, Bernis E., *and* Elisabeth Kendall Thompson. Laboratories for Radioactive Research. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 28-35.

Brewster, R. Q., *and* J. D. Stranathan. Science Building at the University of Kansas. *American School and University*, 26:373, 1954-1955.

Brown Myron Davis. Laboratory Facilities and Equipment for General and the Physical Sciences. Columbus: The Ohio State University, 1949.(unpublished master's thesis)

Browne, W. Chester. Planning for the Atomic Age. *College and University Business*, 28:2, 42-45, February 1960.

Buchta, J. W. The Physics Laboratory at the University of Minnesota. *American Journal of Physics*, 8:375-381, December 1940.

________. The Physics Lecture Room and Its Equipment. *American Journal of Physics*, 13:189-192, June 1945.

Buildings for Research. New York: F. W. Dodge Corporation, 1958. 224 p.

Burford, W. R. Science Building. Cotati, Calif.: Sonoma State College, October 1961. 72 p. (Educational specifications)

Butler, John H. How to Put the Squeeze on Teaching Lab Cost. *College and University Business*, 31:2, 39-40, August 1961.

Carmichael, O. C., Jr. Laboratory for Research in Radioactivity. *College and University Business*, 22:4, 48-50, April 1957.

Carpenter, C. R. That's Teaching by TV. *College and University Business*, 24:3, 45-46, March 1958.

Chemical Engineering Building, University of Minnesota. *Architectural Record*, 109: 126-131, May 1951.

Chemical Engineering Building, University of Minnesota. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 162-167.

Cocking, Walter D. College Science Plant Facilities. *American School and University*, 16:104-107, 1944-1945.

________. Educational Planning of College Plants. *American School and University*, 29:111-120, 1957-1958.

Coleman, H. S., *ed.* Laboratory Design. New York: Reinhold Publishing Corporation, 1951. 393 p.

College and University Chemistry and Chemical Engineering Buildings Reported to Have Been Constructed During the 1948-1957 Decade. Washington: Division of Higher Education, Office of Education, U. S. Department of Health, Education, and Welfare, December 7, 1960. 3 p. (Dittoed)

College and University Science Buildings Reported to Have Been Constructed During the 1948-1957 Decade. Washington: Division of Higher Education, Office of Education, U. S. Department of Health, Education, and Welfare, January 25, 1962. 9 p. (Dittoed)

Construction Problems of an Atomic Lab. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 36.

Control and Removal of Radioactive Contamination in Laboratories and Hospitals, Handbook 48. Washington: National Bureau of Standards, December 15, 1951. 24 p.

Cornell, Francis G., *and* Edwin B. Cromwell. For Science Facilities Planning Becomes Crucial. *College and University Business*, 30:2, 52-55, February 1961.

Curtain Wall Reflects Laboratory Module. *Progressive Architecture* 38:11, 144-147, November 1947. (Josiah Willard Gibbs Research Laboratory for Yale University)

Davey, Wheeler P. The New Physics Building at the Pennsylvania State College. *American Journal of Physics*, 10:102-109, April 1942.

Davidson, Philip. University of Louisville Erects Building for the Natural Sciences. *College and University Business*, 13:1, 41-43, July 1952.

DeBernardis, Amo, *and others*. Television Facilities. In *Planning Schools for New Media*. Portland, Oreg.: Division of Education, Portland State College, 1961. p. 59-65.

Design of Facilities for Research. *Industrial and Engineering Chemistry*, 39:444-447, April 1947.

Design of Instructional Laboratories: A Symposium. *American Journal of Physics*, 13: 182-185, June 1945.

Dickinson, B. H., *and* Robert H. Noble. The Physics-Mathematics Building at Michigan State College. *American Journal of Physics*, 18:378-385, September 1950.

Digest of a Restudy of the Needs of California in Higher Education. Berkeley: The University of California Printing Department, 1955. p. 85-87.

Dowswell, H. R. Architect in His Relation to the Chemistry Department Building Committee. *Journal of Chemical Education*, 24:350-353, July 1947.

Educational Specifications for the College Heights Campus. San Mateo, Calif.: College of San Mateo, June 1958. p. 26-28, 99-115.

Elliott, William P. Are You Planning to Renovate Your Science Laboratories? *School Science and Mathematics*, 52:1, 35-37, January 1942.

Foulk, W. B. Servicing a Modern Laboratory. *American School and University*, 5:298-305, 1933.

________. Servicing a Modern Laboratory. *American School and University*, 9:436-447, 1937.

________. Servicing a Modern Laboratory. *American School and University*, 11:465-479, 1939.

________. Servicing a Modern Laboratory. *American School and University*, 14:373-381, 1942.

Freese, Gordon P. Exploring the Possibilities of Teaching by Closed-Circuit Television. *College and University Business*, 24:2, 24-26, February 1958.

General Electric Research Laboratory. *Architectural Record*, 108:124-127, July 1950.

General Motors Technical Center. *Architectural Forum*, 95:111, November 1951.

Grinstead, N. B. Applied Arts and Science Building at Central Missouri State College. *Industrial Arts and Vocational Education*, 49:52-58, March 1960.

Haines, Charles. Planning the Scientific Laboratory. *Architectural Record*, 108:106-123, July 1950.

Hauf, Harold D., *and others*. New Spaces for Learning--Designing College Facilities to Utilize Instructional Aids and Media, Report of a Research Project. Troy, N. Y.: School of Architecture, Rensselaer Polytechnic Institute, June 1, 1961. 134 p.

Heavy Ion Accelerator Building. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 59-61.

Hengst, Herbert R., *ed.* The Planning and Utilization of Instructional Facilities, Conference Proceedings. East Lansing: Center for the Study of Higher Education, Michigan State University, August 8-9, 1960. 156 p.

Hickman, Roger W., Edwin C. Kemble, *and* Leonard K. Nash. Allston Burr Lecture Hall, Harvard University. *American Journal of Physics*, 22:486-489, October 1954.

Hogan, John F. Providence College Opens Science Building. *College and University Business*, 6:3, 18-20, March 1949.

Howe, Carl E. Laboratory Electric Services for the Undergraduate Physics Laboratory. *American Journal of Physics*, 13:192-202, June 1945.

Howe, C. E., *and* F. G. Tucker. The Oberlin College Laboratory of Physics. *American Journal of Physics*, 17:246-250, May 1949.

Hurd, Paul De H. Science Facilities for the Modern High School (Educational Monograph No. 2, School of Education). Stanford, Calif.: Stanford University Press, 1954. 52 p.

________. Science: Instructional Trends. In *New Dimensions in Junior College Planning*. Stanford, Calif.: School Planning Laboratory, School of Education, Stanford University, 1958. p. 86-87.

Hyde, Bryden B. Housing the Physical Sciences. *College and University Business*, 23:2, 35-36, August 1957.

Kohler, O. C., *and* D. W. Orr. Housing the Chemistry Department at Mount Holyoke. *American School and University*, 28:391-394, 1956-1957.

Kosoloski, John E. Planetaria Data. Harrisburg, Pa.: Bureau of Curriculum Services, Department of Public Instruction, Commonwealth of Pennsylvania, July 1960. 13 p. (Mimeographed)

Laboratory Design for Handling Radioactive Materials (Research Conference Report No. 3). Washington: Building Research Advisory Board, National Research Council--National Academy of Sciences, 1952. 140 p.

Laboratory Service Piping. In *Time-Saver Standards*, Edition No. 2. New York: F. W. Dodge Corporation, 1950. p. 788-789.

Lemmon, Mark. This Science Building Is Air-Conditioned. *College and University Business*, 5:6, 22-24, December 1948.

Leonard, J. C. New Natural Science Building. *American School and University*, 22:141-144, 1950-1951.

Lewis, Charles A., *and* Alexander F. Cipa. Easy to Use, Easy to Maintain--That's Wayne University's Science Hall. *College and University Business*, 9:6, 32-55, October 1950.

Lewis, H. F. General Problems of Laboratory Design. *American School and University*, 22:309-312, 1950-1951.

London and Home Counties Branch of the Institute of Physics. The Design of Physics Research Laboratories. New York: Reinhold Publishing Corporation, 1959. 108 p.

Ludlum, R. P. Student-Constructed Science Building. *Journal of Chemical Education*, 34:506, October 1957.

Mackintosh, A. D. Architectural Problems in Atomic Labs. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 37-42.

__________. Radiochemical Laboratory--An Architectural Approach to Its Design. In *Nucleonics*. New York: McGraw-Hill Book Company, Inc., November 1949. p. 48-61.

Martin, Deac. Lighting the Laboratory. *College and University Business*, 14:1, 46-47, January 1953.

Maurer, H. What the Chairman of a Science Building Project Should Know. *American School and University*, 22:119-122, 1950-1951.

Mayhew, Clarence. When Scientists Plan a Science Building. *College and University Business*, 4:4, 18-19, April 1948.

More Harvard: A Flexible Laboratory Building to Meet the Changing Needs of Science. *Architectural Forum*, 98:126-127, June 1953.

Morgan, Dane D. Science Building for a Large Junior College. *College and University Business*, 21:3, 38-39, September 1956.

National Education Association. Mathematics and Science Teaching and Facilities. Washington: The Association, Research Division, 1959. 49 p.

National Safety Council. Chemical Laboratories, Safe Practices Pamphlet No. 6. Chicago: The Council, 1937. 12 p.

The National Science Teachers Association. College Facilities for the Education of Science Teachers. In *School Facilities for Science Instruction*. Washington: The Association, 1954. p. 199-216.

The National Science Teachers Association. Science Course Content and Teaching Apparatus Used in Schools and Colleges of the United States. Chicago: M. W. Welch Manufacturing Company, 1946. 186 p.

New Engineering School for Maryland University. *Architectural Record*, 102:6, 100-105, December 1947.

New Physical Sciences Building. *University of Kansas Alumni Magazine*, 53:8-9, 12-14, October 1954.

News...Research Grant from E.F.L. *College and University Business*, 32:1, 62, January 1962.

Nuclear Science Center. *Overview*, 1:58, October 1960.

Nuclear Studies Laboratory. *Progressive Architecture*, 33:79-83, December 1952. (Cornell University)

Oetjen, Robert A., *and* John N. Cooper. The New Physics Building at The Ohio State University. *American Journal of Physics*, 21:221-227, March 1953.

Overbeck, C. J. Floor Plans. *American Journal of Physics*, 13:185-189, June 1945.

Palmer, R. Ronald (director). Project on Design of Physics Buildings: Selected Reprints of Articles on Physics Buildings. New York: American Institute of Physics, June 1959. 183 p.

Palmer, R. Ronald, *and* William Maxwell Rice. Modern Physics Buildings: Design and Function. New York: Reinhold Publishing Corporation, 1961. 324 p.

Pierce, George F., Jr. Here is a Practical Approach to Laboratory Design. *College and University Business*, 26:3, 40-43, March 1959.

Poole, Lynn. Science Via Television. Baltimore: Johns Hopkins Press, 1950. 198 p.

Proposed Physics Building for Yale University. *Architectural Record*, 114:141-147, September 1953.

Radiochemistry Building. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 49-51. (University of California Radiation Laboratory)

Railsback, G. L., *and* H. M. Skadeland. No Idle Space with This Multiple Lab. *College and University Business*, 27:1, 25-28, July 1959.

Rasmussen, H. B., *and others*. Symposium on College and University Chemistry Equipment and Supplies. *Journal of Chemical Education*, 27:385-398, July 1950.

Rice, William M., *and* Elisabeth K. Thompson. The Design of Particle Acceleration Buildings. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 52-58.

Richardson, John S., *ed.* School Facilities for Science Instruction. Washington: The National Science Teachers Association, 1954. p. 199-257.

Richardson, John S., *and* G. P. Cahoon. Methods and Materials for Teaching General and Physical Sciences. New York: McGraw-Hill Book Company, Inc., 1951. 485 p.

Richardson, John S., G. P. Cahoon, *and* Ralph W. Lefler. Facilities for Science Teacher Education. *American School and University*, 24:299-308, 1952-1953.

Robertson, G. R. Chemistry at UCLA. *Journal of Chemical Education*, 30:526-529, October 1953.

_________. Design of a Chemistry Lecture Room. *Journal of Chemical Education*, 36: 197-201, April 1959.

_________. New Fundamental Designs for Academic Chemistry Buildings. *Journal of Chemical Education*, 38:474-477, September 1961.

Safe Handling of Isotopes, Handbook 42. Washington: National Bureau of Standards, September 1949. 30 p.

Santoro, Louis L. Physics and Electrical Engineering Research Building. *American School and University*, 30:359-366, 1958-1959.

Science and Pharmacy Buildings for Drake University. *Progressive Architecture*, 31: 11, 65-89, November 1950.

Science Building at Woman's College. *College and University Business*, 2:2, 8-9, February 1947.

Science Building, Bemidji State College. St. Paul, Minn.: Department of Administration, State College Board, November 15, 1959. 57 p.

Science Buildings Key the New Campus. *Architectural Record*, 122:2, 170-171, August 1957. (St. John's College, Maryland)

Science Facilities. In *Planning Junior Colleges*. Sacramento, Calif.: Department of Education, State of California, 1948. p. 22-25+.

Scientific Apparatus Makers Association. Here's the Simple, Safe, Sure Way to Plan and Purchase Laboratory Facilities. Chicago: The Association, 1951. 15 p.

Scientists Build to a Human Scale. *Overview*, 1:60-61, September 1960.

Scully, Mark F., *and* Francis G. Cornell. Obsolescence and Modernity in College Plant Facilities. *American School and University*, 31:47-50, 1959-1960.

Sharefkin, David M. How to Dispose of Chemical Wastes. *College and University Business*, 30:6, 43-44, June 1961.

Spence, B. J. The New Laboratory of Physics at Northwestern University. *American Journal of Physics*, 11:208-218, August 1943.

Stranathan, J. D., *and* R. Q. Brewster. Science Building at the University of Kansas. *American School and University*, 26:373-378, 1954-1955.

Symposium on Design and Construction of College and University Chemistry Laboratories. *Journal of Chemical Education*, 24:320-353, July 1947.

Taylor, Harold. New Thinking on College Buildings. *Architectural Forum*, 98:116-145, June 1953.

Thompson, Elisabeth K. For an Architecture of Nuclear Buildings. In *Buildings for Research*. New York: F. W. Dodge Corporation, 1958. p. 62.

Vahlberg, Robert W. Five in One. *College and University Business*, 7:5, 15-19, November 1949.

Viles, Frederick J., Jr. Design and Uses of Laboratory Hoods. *College and University Business*, 22:6, 41-44, June 1957.

Ward, Donald R. Design of Laboratories for Safe Use of Radioisotopes. Oak Ridge, Tenn.: Advisory Field Service Branch, Isotope Division, Atomic Energy Commission, November 1952. 48 p.

Watson, R. B. Addition to the Physics Building at the University of Texas. *American Journal of Physics*, 29:50-56, January 1961.

Watts, Ralph J. Science Building Remodeled. *College and University Business*, 8:2, 28-30, February 1950.

Where Unexpected Events Are Expected: Massachusetts Institute of Technology's Fresh Approach to Planning. *Architectural Record*, 102:6, 94-99, December 1947.

Wiegand, W. H. Planning the Physical Plant for Teaching by Television. *College and University Business*, 25:3, 35-38, September 1958.

Yarbrough, David B. The Team Approach to Planning a College Science Building, Investigation No. 5. Houston, Tex.: Caudill, Rowlett and Scott, September 1960. 48 p.

GPO 9 266 26

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

March 1962 OE-51004-3

LIBRARY FACILITIES PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

For the aggregate United States, as of December 31, 1957, the number of students who could be seated at one time in higher education library reading rooms represented 16.2 percent of the fall 1957 enrollment; the mean assignable area[1] in square feet per unit of capacity was 56.4. (See table 1.) These figures are revealed in data reported through "Inventory of College and University Physical Facilities, December 31, 1957" (part 3 of a 5-part survey[2] and now in process). Inventory response data were reported in table 1 of OE-51004-1, the first of this Physical Facilities Series; 84.9 percent of the institutions in the aggregate United States participated, and these institutions enrolled 95.5 percent of the fall 1957 enrollment in higher education.

Regionally, the South led in percent of student body that could be seated at one time in reading rooms of libraries, 20.0 percent; and the West showed the lowest percent, 12.6. However, for regional averages of assignable area per unit of capacity, the situation is reversed--here the West had the largest unit size, 59.0 square feet; and the South the smallest, 54.9 square feet. Regional comparisons of mean, median, and interquartile range are shown on page 2, both for percent of enrollment who could be seated at one time and for mean assignable area per unit of capacity. For the middle 50 percent of the distribution in the United States by State averages, the number who could be seated at one time ranged from 14.0 to 20.1 percent; the assignable area per unit of seating capacity ranged from 53.8 to 60.8 square feet.

List A, following table 1, shows library buildings occupied for the first time during the 1948-57 calendar decade. Omitted from the list are library facilities constructed during the decade which were not located in a building whose basic function was that of library. List B is a "Library Facilities Planning Bibliography."

The Physical Facilities Series is designed to present, as it becomes available, preliminary and other information concerning college and university physical facilities. Previous issues were: OE-51004-1--Inventory of Higher Education Physical Facilities and OE-51004-2--Science Facilities Planning Aids. A separate Finance Series presents information on matters related to higher education finance. Data can thus be disseminated prior to publication of the complete report.

1/ Assignable area includes area of reading rooms, resource rooms, workrooms, stacks, offices, storage, and accessory facilities.

2/ College and University Facilities Survey, begun in 1956 by the Office of Education. Part 1 published in 1959; part 2 published in 1960; parts 3 and 4 begun in 1958 and 1961, respectively, now in process.

Region	Percent of fall 1957 enrollment that could be seated at one time			Area per unit of seating capacity (sq. ft.)		
	Mean	Median	Inter-quartile range	Mean	Median	Inter-quartile range
United States..........	16.2	16.7	14.0-20.1	56.6	60.0	53.8-60.8
Northeast..............	15.3	14.9	13.2-18.1	58.2	60.1	54.3-62.3
North Central...........	16.1	15.7	15.1-19.4	55.9	58.3	51.6-59.6
South[1/]..................	20.0	20.8	17.2-23.9	54.9	56.7	51.9-63.0
West....................	12.6	10.3	7.9-16.7	59.0	60.2	58.8-60.5

[1/] Includes District of Columbia.

Table 1.--Fall 1957 enrollment, student seating capacity, and assignable area of library facilities[1] occupied by higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region and State

Region and State	Institutions reporting complete library data		Seating capacity	Percent that could be seated at one time	Assignable area	
	Number	Fall 1957 enrollment[2]			Total square feet (in hundreds)	Mean square feet per unit of capacity
AGGREGATE UNITED STATES	1,595	2,774,782	449,741	16.2	253,737	56.4
UNITED STATES	1,586	2,743,803	443,985	16.2	251,361	56.6
NORTHEAST	392	668,767	102,030	15.3	59,408	58.2
Connecticut	18	20,478	3,579	17.5	1,889	52.8
Maine	15	9,393	1,874	20.0	1,318	70.3
Massachusetts	64	91,063	16,641	18.3	7,775	46.7
New Hampshire	8	10,704	3,266	30.5	1,773	54.3
New Jersey	32	56,737	10,164	17.9	6,708	66.0
New York	135	296,120	41,276	13.9	24,766	60.0
Pennsylvania	102	163,250	21,405	13.1	13,177	61.6
Rhode Island	8	13,846	2,373	17.1	1,164	49.1
Vermont	10	7,176	1,452	20.2	838	57.7
NORTH CENTRAL	471	799,764	128,597	16.1	71,892	55.9
Illinois	75	151,739	23,701	15.6	14,136	59.6
Indiana	41	72,578	10,716	14.8	6,489	60.6
Iowa	45	48,218	11,237	23.3	4,956	44.1
Kansas	41	44,408	8,424	19.0	4,801	57.0
Michigan	43	129,916	19,064	14.7	10,222	53.6
Minnesota	28	62,267	9,929	15.9	6,026	60.7
Missouri	56	67,284	10,548	15.7	6,110	57.9
Nebraska	20	25,568	4,801	18.8	2,605	54.3
North Dakota	12	11,156	1,942	17.4	1,140	58.7
Ohio	47	137,375	17,202	12.5	10,275	59.7
South Dakota	15	13,788	2,777	20.1	1,340	48.3
Wisconsin	48	35,467	8,256	23.3	3,792	45.9
SOUTH	495	712,095	142,165	20.0	78,070	54.9
Alabama	22	39,568	6,780	17.1	3,422	50.5
Arkansas	18	20,912	4,752	22.7	2,343	49.3
Delaware	4	6,101	566	9.3	328	58.0
Florida	20	53,023	8,487	16.0	2,105	24.8
Georgia	42	43,596	9,249	21.2	5,842	63.2
Kentucky	28	30,491	6,591	21.6	3,642	55.3
Louisiana	21	48,330	7,567	15.7	4,307	56.9
Maryland	32	43,895	6,640	15.1	4,309	64.9
Mississippi	30	25,691	7,285	28.4	3,271	44.9
North Carolina	39	51,807	15,173	29.3	8,782	57.9
Oklahoma	29	49,994	10,935	21.9	6,658	60.9
South Carolina	24	25,073	4,907	19.6	3,190	65.0
Tennessee	41	50,894	12,067	23.7	5,234	43.4
Texas	80	122,927	21,523	17.5	11,961	55.6
Virginia	35	42,192	10,724	25.4	6,716	62.6
West Virginia	14	23,041	3,899	16.9	2,583	66.2
District of Columbia	16	34,560	5,020	14.5	3,377	67.3
WEST	228	563,177	71,193	12.6	41,991	59.0
Arizona	7	24,844	2,740	11.0	1,481	54.1
California	114	352,169	36,381	10.3	21,859	60.1
Colorado	20	34,472	5,994	17.4	3,201	53.4
Idaho	7	9,336	2,073	22.2	1,532	73.9
Montana	10	10,199	2,113	20.7	1,399	66.2
Nevada	1	2,352	434	18.5	118	27.2
New Mexico	8	14,028	2,222	15.8	1,472	66.2
Oregon	24	35,050	5,578	15.9	3,457	62.0
Utah	8	27,056	3,566	13.2	1,541	43.2
Washington	24	48,144	9,300	19.3	5,545	59.6
Wyoming	5	5,527	792	14.3	386	48.7
U. S. SERVICE SCHOOLS	2	1,109	181	16.3	189	104.4
OUTLYING PARTS	7	29,870	5,575	18.7	2,187	39.2
Alaska	1	2,770	225	8.1	54	24.0
Canal Zone	(3/)	(3/)	(3/)	-	(3/)	-
Guam	(3/)	(3/)	(3/)	-	(3/)	-
Hawaii	3	7,665	1,291	16.8	956	74.1
Puerto Rico	3	19,435	4,059	20.9	1,177	29.0

---

[1] Includes library facilities of educational laboratory or demonstration schools.

[2] Opening Enrollment in Higher Educational Institutions, Fall 1957 (Circular No. 518). Department of Health, Education, and Welfare, Office of Education. Washington: U. S. Government Printing Office, 1958. 48 p.

[3] Not reported.

List A.--Library Buildings Reported To Have Been Occupied for the First Time During the 1948-57 Calendar Decade: Aggregate United States

State and institution	Name of building	Year
Alabama		
Auburn University	Library Storage Buildings	1956
Howard College	Harwell Goodwin Davis Library	1957
Oakwood College	W. H. Green Memorial Library	1952
Troy State College	McCartha Hall	1949
Arizona		
Grand Canyon College	Fleming Library	1957
Arkansas		
Harding College	Beaumont Memorial Library	1950
John Brown University	Library	1954
Little Rock University	Larson Library	1950
Ouachita Baptist College	Riley Library	1950
Southern State College	J. M. Peace Library	1952
California		
Bakersfield College	Library	1955
California State Polytechnic College	Dexter Memorial Library	1949
Claremont University College	Honnold Library	1952
Coalinga College	Library	1957
College of the Holy Names	Library	1957
College of Notre Dame	Greenan Hall	1952
Compton College	Library (B)	1953
El Camino College	Library	1952
Fresno State College	Library	1956
Fullerton Junior College	Library	1957
Humboldt State College	Library	1953
Loma Linda University	Vernier Radcliff Library	1954
Los Angeles Harbor College	Unit O Library	1949
Los Angeles State College of Applied Arts and Sciences	P-Library	1956
Los Angeles Valley College	Library	1955
Monterey Peninsula College	Library	1948
Oceanside-Carlsbad College	Library	1955
Orange Coast College	Library	1951
Pacific School of Religion	New Library Wing	1957
Pasadena City College	Library and Harbeson Hall	1949
Reedley College	Library	1957
Sacramento State College	Library	1953
San Francisco State College	Library	1952
Santa Monica City College	Library	1952
Shasta College	Administration - Library	1950
University of California, Berkeley Campus	Library	1949
University of California, Santa Barbara Campus	Library	1954
University of the Pacific	Irving Martin Library	1956
University of San Francisco	Gleeson Library	1949
Ventura College	Library Unit D	1955
Colorado		
Adams State College of Colorado	Library	1955
Colorado School of Mines	Arthur Lakes Library	1954
Iliff School of Theology	Taylor Library	1956
Connecticut		
University of Bridgeport	Carlson Library	1955

State and institution	Name of building	Year
Florida		
Florida State University	Library	1956
Jacksonville University	Swisher Library	1954
Pensacola Junior College	Library	1957
St. Petersburg Junior College	Library	1956
University of Miami	Pick Musich Library	1957
Georgia		
Emmanuel College	Taylor Memorial Library	1950
Fort Valley State College	H. A. Hunt Library	1952
Georgia Institute of Technology	Price Gilbert Memorial Library	1953
Tift College	Hardin Library	1954
Idaho		
Idaho State College	Library	1954
University of Idaho	University Library	1957
Illinois		
Bradley University	Library	1950
Eastern Illinois University	Booth Library	1950
Greenville College	Memorial Library	1950
Northern Illinois University	Swen Franklin Parson Library	1953
Saint Xavier College	Library - Building No. 6	1956
Southern Illinois University	Morris Library	1956
Wheaton College	Library	1953
Indiana		
Anderson College and Theological Seminary	Charles E. Wilson Library	1957
DePauw University	Roy O. West Library	1956
Evansville College	Clifford Memorial Library	1957
Taylor University	Ayers Memorial Library	1950
Tri-State College	Library	1951
Vincennes University	Science Library	1952
Iowa		
State University of Iowa	General Library	1949
Kansas		
Kansas State Teachers College	William Allen White Library	1951
Kansas Wesleyan University	Memorial Library	1948
Ottawa University	Myers Library and Mammel Art Center	1956
Sterling College	Kelsey Hall	1954
Tabor College	Library	1957
Kentucky		
The College of the Bible	Bosworth Memorial Library	1949
Transylvania College	Frances Carrick Thomas Library	1954
University of Louisville	University Library	1957
Louisiana		
Louisiana College	Richard W. Norton Library	1955
Loyola University	Library	1950
Maryland		
Goucher College	Julia Rogers Library	1952
State Teachers College at Towson	Albert C. Cook Library	1957
State Teachers College, Frostburg	Lowndes Hall	1953
State Teachers College, Salisbury	Library	1957

State and institution	Name of building	Year
Massachusetts		
Assumption College	Maison Francaise	1956
Gordon College	Winn Library	1955
Harvard University	Lamont Library	1949
Regis College	Library	1955
Michigan		
Hillsdale College	Carr Memorial Library	1951
Michigan State University of Agriculture and Applied Science	Library	1955
Northern Michigan College	Lydia M. Olson Library	1951
University of Detroit	University Library	1951
The University of Michigan	Central Service and Stack Building	1954
The University of Michigan	Medical Library	1955
The University of Michigan	Undergraduate Library	1957
Wayne State University	Library - Combined	1954
Minnesota		
Augsburg College and Theological Seminary	George Svardrup Library	1955
Bethel College and Seminary	Library	1950
Carleton College	Library	1956
Concordia College, Moorhead	Carl B. Ylvisaker Library	1956
Gustavus Adolphus College	Bernadotte Memorial Library	1948
Minnesota Bible College	Library Annex	1955
St. Cloud State College	Kiehle Library	1952
St. Paul Seminary	Archbishop Ireland Memorial Library	1949
University of Minnesota, St. Paul Campus	Library	1951
University of Minnesota, Duluth Campus	Library	1953
Mississippi		
Blue Mountain College	Guyton Library	1957
Clarke Memorial College	Sanders Memorial Library	1956
Coahoma Junior College	Library and Business Office	1952
Mississippi Delta Junior College	Emma Kittrell Library	1957
Mississippi State University	Mitchell Memorial Library	1950
Northwest Mississippi Junior College	Library	1953
Perkinston Junior College	Library	1957
University of Mississippi	Library	1951
Missouri		
National College	Library - Administration	1949
Southwest Missouri State College	Library	1957
Westminster College	Reeves Library	1951
Montana		
Montana State College	Library	1949
Nebraska		
Midland College	Library	1953
Municipal University of Omaha	Library	1956
Nebraska State Teachers College, Wayne	U. S. Conn Library	1956
New Jersey		
Caldwell College for Women	Library	1952
Centenary College for Women	Taylor Memorial Library	1954
Fairleigh Dickinson University, Rutherford	Messler Library	1956
Georgian Court College	Farley Memorial Library	1951
Glassboro State College	Savitz Library	1955
Paterson State College	Sarah Byrd Askew Library	1956
Rutgers, The State University	Library	1956

State and institution	Name of building	Year
New Jersey--con.		
Rutgers, The State University	Camden Library	1956
Seton Hall University	McLaughlin Library	1953
New Mexico		
Eastern New Mexico University	Library	1953
New Mexico State University of Agriculture, Engineering and Science	Branson Hall No. 173	1952
New Mexico Western College	Library	1957
University of New Mexico	Law Building	1952
New York		
Alfred University	Herrick Memorial Library	1957
City College of The City University of New York	Morris R. Cohen Library	1957
Clarkson College of Technology	Harriet Call Burnap Library	1955
College of Mount St. Vincent	Fonthill Library	1948
Cornell University	Capenter Hall	1957
D'Youville College	Library	1956
Ithaca College	Library	1953
Keuka College	H. M. Strong Library	1952
Manhattanville College of the Sacred Heart	Brady Memorial Library	1951
Nazareth College	Library	1957
Queens College	Klapper Library	1954
St. Bernardine of Siena College	Jerome Dawson Library	1955
North Carolina		
Agricultural and Technical College of North Carolina	Bluford Library	1955
Atlantic Christian College	Hardy Library	1950
Brevard College	James Addison Jones Library	1948
Gardner-Webb Junior College Inc.	Dover Library	1952
Greensboro College	James Addison Jones Library	1950
Mars Hill College	Memorial Library	1955
North Carolina College at Durham	James E. Shepard Memorial Library	1950
Wake Forest College	Z. Smith Reynolds Memorial Library	1956
Western Carolina College	Hunter Library	1952
Woman's College, University of North Carolina	Library	1950
North Dakota		
North Dakota State University	Library	1949
State Teachers College, Valley City	Allen Memorial Libra	1952
Ohio		
Antioch College	Kettering Library	1956
Central State College	Hallie Q. Brown Library	1948
The Defiance College	Anthony Wayne Library of American Studies	1955
Mount Union College	Library	1950
Our Lady of Cincinnati College	Brennan Memorial Library	1954
United Theological Seminary	Library	1952
University of Toledo	Library	1953
Wittenberg University	Weaver Chapel and Thomas Library	1955
The Youngstown University	University Library	1954
Oklahoma		
Cameron State Agricultural College	Library	1949
Central State College	Max Chambers Library	1957
East Central State College	Linscheid Library	1949
Langston University	G. Lamar Harrison Library	1949

State and institution	Name of building	Year
Oklahoma--con.		
Murray State Agricultural College	Library and Science	1949
Northeastern State College	Library	1951
Panhandle Agricultural and Mechanical College	McKee Library	1952
Oregon		
Northwest Christian College	Library	1957
Oregon College of Education	Library	1951
Southern Oregon College	Library-Classroom Building	1949
Western Evangelical Seminary	George Hallauer Memorial Library	1956
Pennsylvania		
Bucknell University	Bertrand Library	1951
Elizabethtown College	Zug Memorial Library	1949
Gannon College	College Library	1948
Grove City College	Buhl Library	1954
LaSalle College	Library	1952
Lebanon Valley College	George D. Gossard Library	1957
Lycoming College	Library	1952
Pennsylvania Military College	Memorial Library	1949
Philadelphia College of Textiles and Science	Hesslein Library	1949
St. Vincent College	Library	1957
Thiel College	Langenheim Memorial Library	1952
Waynesburg College	Library-Museum	1955
South Carolina		
Anderson College	Library	1956
Converse College	Library	1951
Newberry College	Wessels Library	1954
Wofford College	Whitefoord Smith Library	1949
South Dakota		
Augustana College	Mikkelsen Library	1955
Northern State Teachers College	Library	1957
State University of South Dakota	Law Library	1950
Tennessee		
Carson-Newman College	Maples Library	1949
David Lipscomb College	Crisman Memorial Library	1948
Hiwassee College	Hardwick-Johnston Memorial Library	1955
Southwestern at Memphis	Burrow Library	1953
Tennessee Polytechnic Institute	Library	1949
Texas		
Austin Presbyterian Theological Seminary	Library	1950
Baylor University	Armstrong Browning Library	1952
Blinn College	C. F. Schmidt Library and Fine Arts Building	1950
East Texas Baptist College	Harvey Daniel Bruce Hall	1957
Episcopal Theological Seminary of the Southwest	Administration, Classroom, Library	1956
Hardin-Simmons University	Sandefer Memorial Library	1949
Howard Payne College	Walker Memorial Library	1953
Incarnate Word College	St. Pius X Library	1955
Lamar State College of Technology	Library	1951
North Texas State University	Library Annex	1951
Ranger College	Library	1952
Southern Methodist University	Bridwell Library	1950
Stephen F. Austin State College	College Library	1957
Texas College	D. R. Glass Library	1950

State and institution	Name of building	Year
Texas--con.		
Texas College of Arts and Industries	College Hall	1949
Texas Southern University	Library	1957
Texas Wesleyan College	Judge Armstrong Library	1957
Trinity University	Geo. Storch Memorial Library	1953
University of Corpus Christi	Administration and Library	1957
University of Houston	M. D. Anderson Memorial Library	1950
University of St. Thomas	Memorial Library	1952
Wayland Baptist College	Van Howeling Memorial Library	1957
West Texas State College	Library	1951
Vermont		
Green Mountain College	Burke Surdam Library	1951
Virginia		
Hollins College	Fishburn Library	1955
Lynchburg College	Floyd L. Knight Memorial Library	1954
Virginia Polytechnic Institute	Newman Hall	1955
Washington		
Gonzaga University	Crosby Library	1957
University of Puget Sound	Collins Memorial Library	1954
Whitman College	Penrose Memorial Library	1957
West Virginia		
Fairmont State College	Library	1952
West Virginia Wesleyan College	Pfeiffer Memorial Library	1953
Wisconsin		
University of Wisconsin, Madison	Memorial Library	1953
Wisconsin State College and Institute of Technology	Karrmann Library	1954
Wisconsin State College, River Falls	Chalmer Davee Library	1954

List B.--Library Facilities Planning Bibliography

Aggeler, William F., *and others*. Program for the First Unit of a New Library Building. Santa Barbara, Calif.: Library Building Committee, University of California, Santa Barbara College, June 30, 1950. 101 p. (Mimeographed)

ALA Standards for College Libraries. Chicago: Association of College and Research Libraries, 1959. 7 p.

American College Libraries. *Institute of International Education News Bulletin*, 34:36-40, May 1959.

Appelt, D. C. Primarily Library. *College and University Business*, 18:2, 34-37, February 1955.

Architect's Concept: John M. Olin Library. *Library Journal*, 81:2762-2767, December 1, 1958.

Association of College and Research Libraries Committee on Standards. Standards for College Libraries. In *College and Research Libraries*, 20:274-280, July 1959.

Association of College and Reference Libraries. Proceedings of the Library Building Plans Institute (ACRL Monograph No. 4). Chicago: The Association, 1952. 81 p.

__________. Proceedings of the Library Building Plans Institute (ACRL Monograph No. 11). Chicago: The Association, 1954. 108 p.

Bailey, J. Russell. Converse College Chooses Sloping Site for Library Building. *College and University Business*, 13:3, 31-33, September 1952.

__________. To Remodel or Not to Remodel from the Point of View of the Architect. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 126-128.

Barrow, William J. Deterioration of Book Stock: Causes and Remedies. Richmond, Va.: Virginia State Library, 1959. 70 p.

Bean, Donald E., *and* Ralph E. Ellsworth. Modular Planning for College and Small University Libraries. Iowa City, Iowa: R. E. Ellsworth, State University of Iowa. 1948. 41 p.

Billmyer, Eleanor. At Cornell University: Mann Library and Anabell Taylor Hall. *American School and University*, 26:323-328, 1954-1955.

Boulware, Lyle F. $600,000 Covers Cost of This College Building. *College and University Business*, 13:6, 33-35, December 1952.

Briggs, C. C. How a Flexible Library Plan Evolved. *College and University Business*, 6:4, 24-27, April 1949.

Burchard, John E., Charles W. David, *and* Julian P. Boyd. Planning the University Library Building. Princeton, N. J.: Princeton University Press, 1949. 145 p.

Burford, W. R. Library Section. In *Classroom Building*. Cotati, Calif.: Sonoma State College, October 1961. p. x-xi, 1-14. (Educational specifications)

Byrd, C. K. Site, Seats and Selectivity: Some Thoughts on Planning the College Library Building. *College and Research Libraries*, 18:2, 127-131, March 1957.

Carlson, William H. A Program for the Erection of a New Library Building at Oregon State University. Corvallis, Oreg.: Director of Libraries, Oregon State University, April 1960. 19 p. (Educational specifications--mimeographed)

Case Institute of Technology Library. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 54-60.

Cassell, Stuart K., *and* Seymour Robb. Virginia Tech's Carol M. Newman Library. *American School and University*, 29:339-344, 1957-1958.

Chatelain, Leon, Jr. Getting the Most for Your Money from the Point of View of the Architect. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 35-37.

College and University Library Buildings Reported To Have Been Constructed During the 1948-1957 Decade. Washington: Division of Higher Education, Office of Education, U. S. Department of Health, Education, and Welfare, March 2, 1962. 8 p. (Dittoed)

Continuity Without Compromise. *Architectural Forum*, 112:2, 92-97, February 1960.

Crosland, Dorothy. Georgia Institute of Technology Library. In *Planning a Library Building*. Chicago: American Library Association, 1955. p. 48-52.

Dare, Ruby E. Freedom and Arts United in Design of Memorial Library. College and University Business, 11:3, 42-44, September 1951.

Davidson, Donald C. (chairman). Program for the First Unit of a New Library Building, Santa Barbara College. Santa Barbara, Calif.: Building Committee, Santa Barbara College, University of California, June 30, 1950. 107 p. (Educational specifications)

_________. Program for the Library Building Unit No. 2, Santa Barbara College. Goleta, Calif.: Building Committee, Santa Barbara College, University of California, May 1, 1958. 89 p. (Educational specifications)

Davidson, Donald C., Herbert Fungarette, and Elmer R. Noble. Program for the Library Building, Unit Number 2. Goleta, Calif.: Library Building Committee, University of California, Santa Barbara College, May 1, 1958. 83 p. (Mimeographed)

Dix, William. Undergraduate Libraries. College and Research Libraries, 14:271-272, July 1953.

Dix, William S. Rice Institute Attains Real Functionalism in Its Library. College and University Business, 8:6, 37-41, June 1950.

Doms, Keith, and Howard Rovelstad, editors. Guidelines for Library Planners, (Proceedings of the Library Buildings and Equipment Institute, University of Maryland, College Park, Maryland, June 18-20, 1959). Chicago: American Library Association, 1960. 128 p.

Educational Specifications for the College Heights Campus. San Mateo, Calif.: College of San Mateo, June 1958. p. 20-21, 64-80.

Ellsworth, Ralph E. Determining Factors in the Evaluation of the Modular Plan for Libraries. College and Research Libraries, 14:125-129, April 1953.

_________. Library Architecture and Buildings. Library Quarterly, 25:66-75, January 1955.

_________. New Library of the State University of Iowa. American School and University, 23:339-342, 1951-1952.

_________. Planning the College and University Library Building: A Book for Campus Planners and Architects. Boulder, Colo.: Pruett Press, 1960. 111 p.

_________. Trends in University Library Buildings. Higher Education, 5:207-208, May 15, 1949.

Equipment Evaluation and Specification Writing--a Panel Discussion. In Guidelines for Library Planners. Chicago: American Library Association, 1960. p. 20-25.

Facilities Standards. In State College Administrative Manual. Sacramento, Calif.: Department of Education, State of California, July 1960. Sec. 6510.

Fitch, Louis H. Wittenberg Combines Facilities for Chapel and Library. College and University Business, 23:6, 28-29, December 1957.

Foster, L. E. Resilient Floorings for Library Buildings. In Guidelines for Library Planners. Chicago: American Library Association, 1960. p. 17-20.

Friley, Charles E., and R. W. Orr. A Decade of Book Storage at Iowa State College. College and Research Libraries, 12:7-10, January 1951.

Galvin, Hoyt R. ed. Planning a Library Building: The Major Steps, American Library Association Buildings Institute, St. Paul, Minnesota. Chicago: American Library Association, 1955. 60 p.

Geer, Helen T. Cost Figures for Library Buildings Erected 1949-1954. In Planning a Library Building. Chicago: American Library Association, 1955. p. 67-70.

Gerould, James T. The College Library Building: Its Planning and Equipment. Chicago: American Library Association, 1932. 116 p.

Gifford, H. Carleton University Library Building. American Library Association Bulletin, 54:478-480, June 1960.

Githens, A. M., and W. P. Kellam. Evolution of a Library, Little Library Completed, Illah Dunlap Little Memorial Library. Library Journal, 78:2131-2139, 2150, December 15, 1953.

Gothic Campus Gets a Contemporary Building. Progressive Architecture, 41:4, 178-188, April 1960.

Grannis, Edith E. H. St. Cloud State Teachers College Library. In Planning a Library Building. Chicago: American Library Association, 1955. p. 52-54.

Hahesy, Edmund. Library Building to Expand with State Appropriations. College and University Business, 16:5, 32-35, May 1954.

Hanley, Edna Ruth. Recent Trends in Small College Library Buildings. Library Journal, 70:22, December 15, 1952.

Hanson, G. D. If Thinking Modern, You Must See Adolphus. Library Journal, 75:16-19, January 1, 1950.

Hanson, Grant D. Library Has the Flexibility to Serve an Enlarged Student Body. College and University Business, 7:3, 19-21, September 1949.

Hebberd, Mary H. Florence Wing Library, Wisconsin State College. American School and University, 30:345-350, 1958-1959.

Higgins, Daniel P. College and University Library Buildings. American School and University, 22:127-140, 1950-1951.

Hodgson, James G. Library Planning for Colleges and Universities. American School and University, 29:121-124, 1957-1958.

__________. Planning the New Library Building. Journal of Higher Education, 28:91-95+, February 1957.

Holdsworth, H., and A. Lodewycks. Down Under University Builds Library. Library Journal, 82:965-968, April 1, 1957.

Holy, T. C., H. H. Semans, and T. R. McConnell. A Restudy of the Needs of California in Higher Education. Sacramento: California State Department of Education, 1955. p. 312-313.

Horowitz, Harold. Getting the Most for Your Money from the Point of View of the Researcher. In Guidelines for Library Planners. Chicago: American Library Association, 1960. p. 38-41.

Hosmer, Chester H. Heating and Ventilating. In Guidelines for Library Planners. Chicago: American Library Association, 1960. p. 27-31.

Hutchins, Robert S. Julia Rogers Library of Goucher College. American School and University, 26:329-332, 1954-1955.

Illuminating Engineering Society. Libraries. In IES Lighting Handbook, 3d ed. New York: The Society, 1959. Chap. 12, p. 21-29.

__________. School Lighting: Libraries and Reading Rooms. In IES Lighting Handbook, 3d ed. New York: The Society, 1959. Chap. 11, p. 28.

Jackson, M. Hawaiian Branch Goes Modern: Kalihi Palama Branch of the Library of Hawaii. Wilson Library Bulletin, 25:304-305, December 1950.

Jones, Harold E. College Library for West Virginia. College and University Business, 15:2, 32-35, August 1953.

Kalihi-Palama Branch, Library of Hawaii. Architectural Record, 111:160-164, April 1952.

Kaplan, Louis. The Librarian's Function in Working Drawings. In Planning a Library Building. Chicago: American Library Association, 1955. p. 19-23.

Kilham, Walter H., Jr. Planning the Harvey Firestone Memorial Library, Princeton University. American School and University, 20:193-201, 1948-1949.

Kilpatrick, N. L. Florida State University Library. In Planning a Library Building. Chicago: American Library Association, 1955. p. 34-39.

King, Sol. Michigan's Library for Undergraduates. College and University Business, 26:4, 38-41, April 1959.

Krenitsky, Michael V. Approach to a University Library Design. American School and University, 29:377-388, 1957-1958.

Lamont Library, Harvard University. Architectural Record, 105:86-95, June 1949.

Lampe, Joanne. Marquette University Chooses Modified Cross Design for Its Library. College and University Business, 16:3, 44-45, March 1954.

Lashmit, Luther. The Architect's Function in Preliminary Planning. In Planning a Library Building. Chicago: American Library Association, 1955. p. 15-18.

Latta, G. Riverside's New Library. Library Journal, 78:1302-1305, August 1953. (College of Letters, Arts and Sciences of the University of California)

Levin, Sol. Writing Specifications for Library Equipment. In Guidelines for Library Planners. Chicago: American Library Association, 1960. p. 119-121.

Lewis, T. Leonard. A Dormitory and Library for Gordon College's New Campus. American School and University, 29:335-338, 1957-1958.

Library Bookstack Data. In Time-Saver Standards. New York: F. W. Dodge Corporation, 1950. p. 438-439.

Linscheid, Chester H. New Mexico College of Agriculture and Mechanic Arts Library. In Planning a Library Building. Chicago: American Library Association, 1955. p. 43-46.

Logan, Harry L. Lighting Libraries. Library Journal, 77:22, 2125-2129, December 15, 1952.

MacDonald, Angus A. Building Design for Library Management. Library Trends, 2:463-469, July 1953-April 1954.

Mackin, J. A., and D. E. Schmitt. Check List of Items, John Carroll University Library. Cleveland, Ohio: John Carroll University, October 21, 1959. 10 p. (Mimeographed)

McGuire, Francis X., and M. A. Sullivan. Library Building for Villanova College. College and University Business, 4:4, 20-21, April 1948.

McLeod, I. California School Builds Model Library, Citrus Union High School and Junior College, Azusa, California. Library Journal, 75:123-124, January 15, 1950.

Merigian, Lillie, and Eileen Hallberg. Wayne University Connects Its Two New Libraries. College and University Business, 12:6, 36-38, June 1952.

Metcalf, Keyes D. The Librarian's Function in Programming. In Planning a Library Building. Chicago: American Library Association, 1955. p. 3-10.

__________. Spatial Problems in University Libraries. Library Trends, 2:554-561, April 1954.

Modular Library Under Construction, State College of Washington, Pullman. Architectural Record, 104:102-109, July 1948.

Morgridge, Howard. Library for New College [El Camino]. College and University Business, 14:2, 40-42, February 1953.

Muller, Robert H. Compact Storage Equipment: Where to Use It and Where Not. College and Research Libraries, 15:3, 300-308, July 1954.

Murphy and MacKey Design Wins Washington University Competition. Architectural Record, 120:16, July 1956.

New College and Public Libraries from Coast to Coast. Library Journal, 84:3669-3739, December 1, 1959.

New Look in Library Buildings; Campus, County, City; Symposium. Library Journal, 85:4259-4331, December 1, 1960.

O'Connor, Robert B. Problems of Modern Materials. In Planning a Library Building. Chicago: American Library Association, 1955. p. 30-34.

O'Connor, R. B., and W. H. Kilham, Jr. Full Size Mock-up for Library Planning. Architectural Record, 101:99-101, January 1947.

__________. New Library Recalls Historic Past. College and University Business, 25:1, 30-32, July 1958.

Parker, Ralph H. Colonial Library on Modular Plan. College and University Business, 4:1, 15-17, January 1948.

Part 6, Facilities Standards. In State College Administrative Manual. Sacramento, Calif.: State Department of Education, July 1960. Sec. 6510.

Peters, Ralph W. Small Library Has Roof Lighting. College and University Business, 26:6, 32-33, June 1959.

Pezzoni, B. Spaciousness on a Four Acre Campus. College and University Business, 29:5, 45-47, November 1960.

Pflueger, Milton T. Library: Modest in Cost and Flexible in Arrangement. College and University Business, 12:5, 38-39, May 1952.

Ramsey, Charles George, and Harold Reeve Sleeper. Library Equipment. In Architectural Graphic Standards, 4th ed. New York: John Wiley and Sons, Inc., 1952. p. 427.

Rare Building for Rare Books. Architectural Forum, 113:5, 138-141, November 1960. (New library at Yale University)

Reece, Ernest J. Building Planning and Equipment. Library Trends, 1:136-155, July 1952.

__________. Library Building Programs: How to Draft Them. *College and Research Libraries*, 13:198-211, July 1952.

Reynolds, Helen M. University Library Buildings in the United States, 1890-1939. *College and Research Libraries*, 14:2, 1949-1957, April 1953.

Richards, Benjamin S. Knox College Library Addition. In *Planning a Library Building*. Chicago: American Library Association, 1955. p. 46-48.

Richards, James H., Jr. Making Virtue of Sloping Site in Planning the Library. *College and University Business*, 22:3, 38-42, March 1957.

Rist, M. Iliff Theological School Library. *Library Journal*, 81:2786-2789. December 1, 1956.

Rovelstad, Howard. More Library for Your Building Dollar: The University of Maryland Experience. *College and Research Libraries*, 20:189-193, May 1959.

Rowe, Howard M. The Librarian's Function in Preliminary Planning. In *Planning a Library Building*. Chicago: American Library Association, 1955. p. 11-15.

Rugg, E. U. Planning a College Library. *American School and University*, 21:171-180, 1949-1950.

St. Louis Architects Win Washington University Competition: John M. Olin Library. *Progressive Architecture*, 37:76-77, July 1956.

St. Vincent College Library. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 50-53.

The Schaffer Library, Union College. Schenectady, N. Y.: Union College, April 29, 1961. 20 p.

Schmitt, D. E. Meeting with Dr. Keyes D. Metcalf, Director (retired) of Libraries at Harvard University Re Plans for New John Carroll University Library. Cleveland, Ohio: John Carroll University, December 31, 1959. 7 p. (Mimeographed)

Schneider, Evelyn J. University of Louisville Library. In *Planning a Library Building*. Chicago: American Library Association, 1955. p. 39-43.

Schweikher, Paul. The Spaces in Between. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 7-10.

Setter, Donald P. The Architect's Function in Working Drawings. In *Planning a Library Building*. Chicago: American Library Association, 1955. p. 24-25.

Shambaugh Library and Its Plaza. In *George Fox College is Growing*. Newberg, Oreg.: Office of Development, George Fox College, 1961. p. 7.

Smith, Kathryn L. Library at Wyoming Proves Pleasant and Comfortable. *College and University Business*, 28:2, 38-41, February 1960.

Speers, George A. This Library Features Flexible Construction, Functional Design. *College and University Business*, 15:6, 42-45. December 1953.

__________. Library Building--Northeastern University. *American School and University*, 26:333-336, 1954-1955.

Stallings, H. D. Beauty-Efficiency-Economy: Modular Library Building of North Dakota Agricultural College. *Library Journal*, 75:2109-2112. December 15, 1950.

Stebbins, Ellis A. Library Planning the Slow, Tedious, Democratic Way. *College and University Business*, 18:5, 38-40, May 1955.

Tauber, Maurice F., *and* Eugene H. Wilson. Report of a Survey of the Library of Montana State University for Montana State University, January-May 1951. Chicago: American Library Association, 1951. 174 p.

Thien, Herbert. Science and Library Buildings Are Combined. *College and University Business*, 14:2, 43-44, February 1953.

Trinity College Library. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 60-66.

Two Sparkling Stones in Different Settings. *Architectural Forum*, 105:8, 112-117, August 1956. (Law Library, University of Chicago)

Ulvelling, Ralph A. Getting the Most for Your Money from the Point of View of the Librarian. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 32-35.

United States Air Force Academy Library. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 43-50.

Van Buren, Martin. Layout Plans and Library Interiors. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 10-16.

Wilkinson, Virgil. College Library for California. *College and University Business*, 15:2, 36-38, August 1953.

Wilson, Louis R., *and* Frank A. Lundy. Report of a Survey of the Library of the University of Notre Dame for the University of Notre Dame, November 1950-March 1952. Chicago: American Library Association, 1952. 195 p.

Wilson, Louis R., *and* Maurice F. Tauber. The University Library. New York: Columbia University Press, 1956. 641 p.

Withy, John. Library for Minnesota's School of Agriculture. *College and University Business*, 13:2, 38-39, August 1952.

Yamasaki, M. Library Building, Butler University, Indianapolis, Indiana. *Architectural Record*, 130:136-137, July 1961.

Zahour, Robert L. Library Lighting. In *Guidelines for Library Planners*. Chicago: American Library Association, 1960. p. 26-27.

Zimmerman, L. F. Idaho's Ideal: University of Idaho Library. *Library Journal*, 81:2757-2761, December 1, 1956.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

July 1962 OE-51004-4

STUDENT ACCOMMODATIONS IN INSTRUCTIONAL FACILITIES, 1960-61 AND PLANNED FOR 1965-66

by
Leslie F. Robbins, Specialist for Business Administration

A preliminary tabulation of the first 1,473[1] responses (representing 78 percent of total higher education enrollment) received for the "College and University Enrollment and Facilities Survey, 1961-65," indicates that if funds become available these institutions will be able to furnish instructional accommodations for 41 percent more students by the fall of 1965 than were accommodated in the fall of 1960.

While the preliminary report on anticipated sources of funds to finance academic and related facilities will appear in a later issue of this Physical Facilities Series, it seems necessary to mention here that one-sixth of the funds shown as needed to accomplish this goal are planned to be secured by various forms of borrowing and an additional one-sixth will have to be secured from sources indicated as unknown by the respondent institutions. The projected financing pattern for the remaining two-thirds includes the traditional sources for financing academic and related buildings--State and local governmental appropriations--and assumes rather generous use of funds from anticipated Federal programs and of current operating and endowment funds of the institutions.

The survey was begun in 1961 to ascertain what plans are being made to accommodate the expected increase in enrollment by 1965. It will have three principal areas: (1) number of students, full-time and part-time, undergraduate and graduate, accommodated in instructional facilities in 1960-61; additional number in each group who could have been accommodated; number beyond normal capacity; and number for whom instructional facilities are planned by 1965-66; (2) number of single men, single women, and married couples accommodated in residential facilities in 1960-61; additional number in each group who could have been accommodated; number beyond normal capacity; and number for whom residential accommodations are planned by 1965-66; and (3) new construction and rehabilitation projects planned for completion by 1965-66 in five functional categories, reported by square footage, estimated cost, sources of funds, stage of planning, control, State and region, and type and size of institution.

This release considers highlights from the early responses on the first area of the survey (accommodation status in instructional facilities) and represents full-time (graduate and undergraduate) students only. Table 1 shows the distribution of responses and indicates that representation by region is well-balanced.

---

[1] When the final cutoff was made, responses had been received from 1,600 institutions having 88.4 percent of total enrollments. Tabulations based on the 1,600 responses will appear in a later issue of this series, "Expenditures Planned for Higher Education Facilities, 1961-65," and in the complete report of the survey.

Tables 2, 3, and 4, for all institutions and for publicly and privately controlled institutions, respectively, show by State and region the number of full-time students accommodated in the responding institutions, the number of additional students who could have been accommodated in instructional facilities, the number beyond normal capacity, the number to be accommodated by 1965-66, and the percent of increase which that number would represent over the number accommodated in 1960-61.

There were institutions in 1960-61 which could have accommodated additional students. This would be expected, especially after the dropout period. But other institutions reported that they were overcrowded. A purported current index of the adequacy of instructional facilities based upon the difference between the gross numbers of additional students who could have been accommodated and the gross number beyond normal capacity would be fallacious because of the following factors:

1. Many applicants were turned away by overcrowded schools and did not register elsewhere. They are not represented in the computation.
2. Some institutions reporting a condition of balance or 100-percent utilization of accommodations are operating under a policy of enrollment ceilings but actually turn away many applicants. These rejectees would not appear in the data representing need for additional facilities.
3. Many were turned away because they required dormitory accommodations as well as instructional accommodations and such were not available. (In the same survey, residential accommodations were found to be in a general condition of overcrowding to the extent of 2. 3 percent beyond normal capacity, 4. 5 percent in the case of public institutions.)
4. In some cases, certain divisions of an institution were overcrowded whereas the report for the institution as a whole showed it as being in balance or as having a surplus in total accommodations.

Table 1.--Response rate and regional distribution of respondents, by control

Region	All institutions	Respondents	Rate of response	Regional distribution: All institutions	Regional distribution: Respondents
		2	3	4	5
Total	1,999	1,473	73.7	100.0	100.0
North Atlantic	556	414	74.5	27.8	28.1
Great Lakes and Plains	582	442	75.9	29.1	30.0
Southeast	435	311	71.5	21.8	21.1
West and Southwest	420	304	72.4	21.0	20.6
Outlying Parts	6	2	33.3	0.3	0.2
Total Public	694	509	73.3	100.0	100.0
North Atlantic	120	77	64.2	17.3	15.1
Great Lakes and Plains	189	141	74.6	27.2	27.7
Southeast	154	121	78.6	22.2	23.8
West and Southwest	229	168	73.4	33.0	33.0
Outlying Parts	2	2	100.0	0.3	0.4
Total Private	1,305	964	73.9	100.0	100.0
North Atlantic	436	337	77.3	33.4	35.0
Great Lakes and Plains	393	301	76.6	30.1	31.2
Southeast	281	190	67.6	21.6	19.7
West and Southwest	191	136	71.2	14.6	14.1
Outlying Parts	4	0	0.0	0.3	0.0

Enrollments have increased generally by about 7 or 8 percent a year, and, when the full postwar birthrate bulge reaches college age, will rise even faster if accommodations can be found. On the other hand, estimates of usable accommodations not filled in 1960-61 have generally ranged between 1 and 2 percent. It would appear that the Nation's institutions are staying "out of the red" in facilities only by generally limiting their acceptance of applications.

The factor of obsolescence in physical facilities ought not to be ignored in discussing adequacy. The rate of retirement of old, inadequate, and unsafe buildings should be, based upon an average 50-year lifespan, about 2 percent per year. This can be expressed in terms of the percent of the total enrollment accommodated currently in such buildings, or 2 percent of the enrollment. In theory then, unused accommodations in 1960-61 were mostly substandard, marginal, and obsolescent structures.

Approaching the evaluation from another angle, in this survey many of the student stations reported as not being in use in 1960-61 were in types of institutions which would preclude their general availability to applicants rejected by overcrowded schools.

- Vacant spaces in men's schools do not represent available capacity where a woman applicant is concerned and vice versa.
- Vacant spaces in a theological school or Bible college do not represent generally available capacity.
- Vacant spaces in a technological or professional school or even a teachers college are not always freely usable capacity.
- Vacant spaces in a junior college or a terminal institute have limited utilization potential.
- Vacancies in a Western college may not represent educational opportunity to an Eastern city dweller who must live at home and perhaps attend school at night.
- Church-related schools, even though technically not restricted to members of the respective faith, tend to accommodate a limited clientele.
- Even the presence of facilities adequate to accommodate additional students does not preclude the need for additional faculty and staff.

The North Atlantic region, among the four principal regions, showed the largest degree of apparent utilization of instructional facilities for public and private institutions combined. The Great Lakes and Plains region was second. Among individual States having a high degree of utilization were Alabama, Delaware, Maine, Massachusetts, Michigan, New Jersey, North Carolina, North Dakota, Rhode Island, Utah, Vermont, and Wisconsin.

Total responding institutions, public and private, plan to accommodate 819,929 more full-time students in instructional facilities in 1965-66 than they did in 1960-61, which would be an increase of 41 percent. The West and Southwest region is planning the largest increase, 45 percent, and the same increase is being planned in the Southeast, 45 percent. Disregarding those States from which too few responses were received to comprise a pattern, the individual States planning large percentages of increase are Arizona, Arkansas, Florida, Kentucky, Michigan, Mississippi, New Jersey, and Oklahoma.

A comparison between the data from public institutions and those from private institutions indicates that public institutions are operating more nearly to capacity. This is especially true in the Great Lakes and Plains region. Moreover, in planning for increases by 1965-66, the public institutions are projecting a greater increase over their 1960-61 instructional accommodations than are the private institutions, 45 percent increase as compared to 36 percent.

In considering the adequacy of the planning for increased enrollments, even if the planned growth rate of 41 percent (for public and private institutions combined) is realized, the accommodations may be inadequate. Recent projections[2/] forecast an increase

---

[2/] Conrad, Herbert S., New projections of degree-credit enrollments and upward revision of old projections, U.S. Office of Education, October 5, 1961.

in the opening fall enrollment amounting to 44 percent in the 5-year period.

Tables 3 and 4 do not show the distribution of full-time students between undergraduate and graduate, but an analysis of the backup data reveals that 7.9 percent of the aggregate were graduate students in 1960-61 and that by 1965-66 this percentage is expected to increase slightly to 8.4 percent.

Further Office computations reveal that whereas in 1960-61 the distribution of full-time students by control was 60 percent in public institutions to 40 percent in private institutions, by 1965-66, according to planned accommodations, the ratio will be 61 percent to 39. Regionally, this anticipated shift from private to public institutions appears greatest in the North Atlantic region where private colleges and universities have predominated in numbers and in enrollment. The increase by public institutions of that region is expected to be 3 percentage points in the 5-year period, going from 25 percent to 28 percent.

Table 2.__ Full-time students in instructional facilities of all higher education institutions, by 1960-61 and planned 1965-66 accommodation status, State, and region

State and Region	Existing in 1960-61			Planned for 1965-66	
	Students Accommodated 1/	Additional students who could have been accommodated	Students beyond normal capacity	Total planned accommodations	Percent increase over number accommodated in 1960-61 2/
	1	2	3	4	5
Aggregate U.S.	1,991,592	217,254	43,164	2,811,521	41.2
NORTH ATLANTIC	471,688	36,005	5,529	642,501	36.2
Connecticut	27,499	2,977	30	38,467	39.9
Delaware	4,913	340	106	7,287	48.3
D. C.	17,478	1,061	---	23,658	35.4
Maine	9,340	622	92	12,913	38.3
Maryland	29,200	3,898	62	43,068	47.5
Massachusetts	89,010	3,264	435	109,989	23.6
New Hampshire	9,633	1,328	---	11,732	21.8
New Jersey	34,275	3,778	1,788	52,244	52.4
New York	124,470	10,952	425	173,941	39.7
Pennsylvania	109,909	7,001	2,591	147,973	34.6
Rhode Island	8,975	481	---	12,140	35.3
Vermont	6,986	303	---	9,089	30.1
GREAT LAKES AND PLAINS	638,318	67,302	16,451	896,698	40.5
Illinois	105,044	10,319	980	150,875	43.6
Indiana	58,129	4,267	20	78,705	35.4
Iowa	45,616	4,953	94	60,718	33.1
Kansas	38,760	5,261	102	53,715	38.6
Michigan	78,712	7,850	3,193	117,645	49.5
Minnesota	54,925	5,285	909	75,848	38.1
Missouri	47,581	6,172	1,185	67,182	41.2
Nebraska	21,378	3,393	774	30,457	42.5
North Dakota	12,892	979	200	17,538	36.0
Ohio	109,221	12,186	4,471	152,551	39.7
South Dakota	10,132	1,807	---	13,830	36.5
Wisconsin	55,928	4,830	4,523	77,634	38.8
SOUTHEAST	373,397	44,954	5,752	540,345	44.7
Alabama	29,705	2,161	1,373	42,645	43.6
Arkansas	18,916	2,191	709	30,498	61.2
Florida	48,495	5,635	561	75,142	54.9
Georgia	35,630	6,903	359	50,898	42.9
Kentucky	24,367	2,854	113	37,356	53.3
Louisiana	31,049	3,616	310	43,740	40.9
Mississippi	22,818	3,514	398	34,072	49.3
North Carolina	49,279	3,355	809	71,701	45.5
South Carolina	23,017	2,946	---	29,593	28.6
Tennessee	34,580	5,920	139	49,814	44.1
Virginia	32,966	3,149	661	44,235	34.2
West Virginia	22,575	2,710	320	30,651	35.8
WEST AND SOUTHWEST	496,149	68,993	15,432	718,692	44.9
Alaska	678	125	---	1,850	172.9
Arizona	19,869	2,052	200	30,969	55.9
California	187,491	23,406	11,032	266,052	41.9
Colorado	32,132	3,561	975	45,901	42.9
Hawaii	7,687	2,120	---	13,402	74.3
Idaho	10,189	1,390	---	13,995	37.4
Montana	8,402	1,823	---	11,492	36.8
Nevada	3,095	1,100	---	5,193	67.8
New Mexido	11,328	1,650	---	16,486	45.5
Oklahoma	26,458	3,348	450	42,537	60.8
Oregon	31,099	4,383	---	42,323	36.1
Texas	93,482	17,464	650	137,007	46.6
Utah	16,899	820	1,478	23,851	41.1
Washington	42,511	5,157	647	60,527	42.4
Wyoming	4,829	594	---	7,107	47.2
OUTLYING PARTS	12,040	---	---	13,285	10.3
Canal Zone	192	---	---	195	1.6
Puerto Rico	11,848	---	---	13,090	10.5

--- Indicates zero

1/ It should be noted that total students reported as accommodated are not the number reported in other surveys as the opening fall enrollment of degree-credit students.

2/ Column 4 minus column 1 divided by column 1.

Table 3.__ Full-time students in instructional facilities of public higher education institutions, by 1960-61 and planned 1965-66 accommodation status, State, and region

State and Region	Existing in 1960-61			Planned for 1965-66	
	Students Accommodated 1/	Additional students who could have been accommodated	Students beyond normal capacity	Total planned accommodations	Percent increase over number accommodated in 1960-61 2/
	1	2	3	4	5
Aggregate U.S. Public	1,188,077	122,437	37,931	1,720,592	44.8
NORTH ATLANTIC	116,314	9,162	3,506	180,045	54.8
Connecticut	11,303	475	---	16,559	46.5
Delaware	3,464	315	---	5,387	55.5
D. C.	580	280	---	900	55.2
Maine	5,759	75	17	8,075	40.2
Maryland	19,545	2,913	62	31,134	59.3
Massachusetts	13,455	410	97	22,226	65.2
New Hampshire	4,268	1,248	---	5,363	25.1
New Jersey	10,277	387	1,155	18,050	75.6
New York	19,898	2,488	---	30,200	51.8
Pennsylvania	20,317	450	2,175	31,891	57.0
Rhode Island	3,240	---	---	4,860	50.0
Vermont	4,188	121	---	5,400	28.9
GREAT LAKES AND PLAINS	410,171	33,942	15,287	580,506	41.5
Illinois	52,880	2,285	752	78,459	48.4
Indiana	37,616	2,225	---	49,759	32.3
Iowa	26,090	2,030	83	32,612	25.0
Kansas	31,704	3,485	---	43,134	36.1
Michigan	53,450	3,684	3,048	82,036	53.5
Minnesota	40,430	3,524	638	57,863	43.1
Missouri	26,925	3,020	1,000	37,457	39.1
Nebraska	16,940	2,667	699	23,907	41.1
North Dakota	12,399	902	200	16,713	34.8
Ohio	64,631	7,244	4,344	91,571	41.7
South Dakota	8,194	1,357	---	11,280	37.7
Wisconsin	38,912	1,519	4,523	55,715	43.2
SOUTHEAST	252,281	26,976	4,395	372,957	47.8
Alabama	22,989	1,375	1,165	33,173	44.3
Arkansas	14,604	982	679	24,013	64.4
Florida	33,478	3,218	496	53,996	61.3
Georgia	25,095	5,520	325	35,823	42.7
Kentucky	15,576	1,861	---	23,889	53.4
Louisiana	22,474	2,047	300	32,454	44.4
Mississippi	19,070	2,515	280	28,407	49.0
North Carolina	27,952	2,098	500	42,994	53.8
South Carolina	14,323	1,311	---	17,987	25.6
Tennessee	16,919	2,392	---	25,410	50.2
Virginia	22,339	2,037	450	30,589	36.9
West Virginia	17,462	1,620	200	24,222	38.7
WEST AND SOUTHWEST	397,271	52,357	14,743	573,799	44.4
Alaska	678	125	---	1,850	172.9
Arizona	19,188	1,852	200	29,879	55.7
California	148,829	20,032	10,343	214,566	44.2
Colorado	24,722	1,961	975	35,191	42.3
Hawaii	6,700	1,361	---	11,527	72.0
Idaho	7,914	1,295	---	10,275	29.8
Montana	6,709	973	---	8,617	28.4
Nevada	3,095	1,100	---	5,193	67.8
New Mexico	11,015	1,550	---	15,986	45.1
Oklahoma	23,260	2,622	450	37,532	61.4
Oregon	24,177	3,577	---	33,077	36.8
Texas	67,284	11,055	650	93,286	38.6
Utah	16,369	810	1,478	23,191	41.7
Washington	32,502	3,450	647	46,522	43.1
Wyoming	4,829	594	---	7,107	47.2
OUTLYING PARTS	12,040	---	---	13,285	10.3
Canal Zone	192	---	---	195	1.6
Puerto Rico	11,848	---	---	13,090	10.5

--- Indicates zero

1/ It should be noted that total students reported as accommodated are not the number reported in other surveys as the opening fall enrollment of degree-credit students.

2/ Column 4 minus column 1 divided by column 1.

Table 4.— Full-time students in instructional facilities of private higher education institutions, by 1960-61 and planned 1965-66 accommodation status, State, and region

State and Region	Existing in 1960-61			Planned for 1965-66	
	Students Accommodated 1/	Additional students who could have been accommodated	Students beyond normal capacity	Total planned accommodations	Percent increase over number accommodated in 1960 2/
	1	2	3	4	5
Aggregate U.S. Private	803,515	94,817	5,233	1,090,929	35.8
NORTH ATLANTIC	355,374	26,843	2,023	462,456	30.1
Connecticut	16,196	2,502	30	21,908	35.3
Delaware	1,449	25	106	1,900	31.1
D. C.	16,898	781	---	22,758	34.7
Maine	3,581	547	75	4,838	35.1
Maryland	9,655	985	---	11,934	23.6
Massachusetts	75,555	2,854	338	87,763	16.2
New Hampshire	5,345	80	---	6,369	19.2
New Jersey	23,998	3,391	633	34,194	42.5
New York	104,572	8,464	425	143,741	37.5
Pennsylvania	89,592	6,551	416	116,082	29.6
Rhode Island	5,735	481	---	7,280	26.9
Vermont	2,798	182	---	3,689	31.8
GREAT LAKES AND PLAINS	228,147	33,360	1,164	316,192	38.6
Illinois	52,164	8,034	228	72,416	38.8
Indiana	20,513	2,042	20	28,946	41.1
Iowa	19,526	2,923	11	28,106	43.9
Kansas	7,056	1,776	102	10,581	50.0
Michigan	25,262	4,166	145	35,609	41.0
Minnesota	14,495	1,761	271	17,985	24.1
Missouri	20,656	3,152	185	29,725	43.9
Nebraska	4,438	726	75	6,550	47.6
North Dakota	493	77	---	825	67.3
Ohio	44,590	4,942	127	60,980	36.8
South Dakota	1,938	450	---	2,550	31.6
Wisconsin	17,016	3,311	---	21,919	28.8
SOUTHEAST	121,116	17,978	1,357	167,388	38.2
Alabama	6,716	786	208	9,472	41.0
Arkansas	4,312	1,209	30	6,485	50.4
Florida	15,017	2,417	65	21,146	40.8
Georgia	10,535	1,383	34	15,075	43.1
Kentucky	8,791	993	113	13,467	53.2
Louisiana	8,575	1,569	10	11,286	31.6
Mississippi	3,748	999	118	5,665	51.1
North Carolina	21,327	1,257	309	28,707	34.6
South Carolina	8,694	1,635	---	11,606	33.5
Tennessee	17,661	3,528	139	24,404	38.2
Virginia	10,627	1,112	211	13,646	28.4
West Virginia	5,113	1,090	120	6,429	25.7
WEST AND SOUTHWEST	98,878	16,636	689	144,893	46.5
Alaska	---	---	---	---	----
Arizona	681	200	---	1,090	60.1
California	38,662	3,374	689	51,486	33.2
Colorado	7,410	1,600	---	10,710	44.5
Hawaii	987	759	---	1,875	90.0
Idaho	2,275	95	---	3,720	63.8
Montana	1,693	850	---	2,875	69.8
Nevada	---	---	---	---	----
New Mexico	313	100	---	500	59.7
Oklahoma	3,198	726	---	5,005	56.5
Oregon	6,922	806	---	9,246	33.6
Texas	26,198	6,409	---	43,721	66.9
Utah	530	10	---	660	24.5
Washington	10,009	1,707	---	14,005	39.9
Wyoming	---	---	---	---	----
OUTLYING PARTS	---	---	---	---	----
Canal Zone	---	---	---	---	----
Puerto Rico	---	---	---	---	----

--- Indicates zero

1/ It should be noted that total students reported as accommodated are not the number reported in other surveys as the opening fall enrollment of degree-credit students.

2/ Column 4 minus column 1 divided by column 1.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

July 1962 OE-51004-5

STUDENT ACCOMMODATIONS IN RESIDENTIAL FACILITIES, 1960-61 AND PLANNED FOR 1965-66

by
Leslie F. Robbins, Specialist for Business Administration

Higher education institutions are planning a 51-percent increase in residential accommodations by the fall of 1965, according to a tabulation of early responses to the "College and University Enrollment and Facilities Survey, 1961-65."[1] (More than half of the funds needed for such an expansion are anticipated to come from the College Housing Program.) The early responses comprise 1,473 institutions representing 74 percent of higher education institutions, or 78 percent of opening fall enrollment 1960.[2] Of these, 1,163 were providing residential accommodations.

The previous Physical Facilities release (OE-51004-4) discussed the numbers of full-time students for whom instructional accommodations were provided in 1960-61 and are being planned for 1965-66 as reported by the same respondents. The current release presents the numbers of students accommodated in residential facilities in 1960-61, the additional numbers that could have been accommodated, the numbers beyond normal capacity, the net capacity, and the numbers for whom residential accommodations are planned by 1965-66.

Table 1 is a distribution by region and by control of all institutions, of respondent institutions, and of respondent institutions providing residential accommodations in 1960-61.

In the survey, residential accommodations were distributed by single men, single women, and married couples. An analysis of the backup data distributing the regional figures by men, women, and married couples shows that, although the Southeast enrolls only a moderate portion of the full-time enrollment of the respondents (19 percent), it houses 26 percent of all students housed (27 percent of men, 25 percent of women, and 24 percent of married couples). Conversely, the West and Southwest region, with 30 percent of full-time enrollment, houses only 18 percent of total students housed (18 percent of men, 18 percent of women, and 28 percent of married couples).

Table 2 shows the numbers of students who were accommodated in residential facilities, by State and region, for public and private institutions combined; table 3 shows the numbers for public institutions; and table 4 the numbers for private institutions. Public institutions plan a 57-percent increase in residential accommodations (table 3) as compared with a 46-percent increase planned by private institutions (table 4).

---

[1] Part 4 of a 5-part study by the Office of Education, College and University Facilities Survey.

[2] Opening (Fall) Enrollment in Higher Education, 1960: Institutional Data (OE-54003-60).

Table 1.--Response rate and regional distribution of respondents, by control

Region	All institutions	Respondents	Rate of response	Regional distribution of all respondents (See col. 2) Percent	Regional distribution of respondents providing residential accommodations Number	Regional distribution of respondents providing residential accommodations Percent
	1	2	3	4	5	6
Total	1,999	1,473	73.7	100.0	1,163	100.0
North Atlantic	556	414	74.5	28.1	316	27.3
Great Lakes and Plains	582	442	75.9	30.0	347	29.8
Southeast	435	311	71.5	21.1	274	23.5
West and Southwest	420	304	72.4	20.6	224	19.3
Outlying Parts	6	2	33.3	0.2	2	0.1
Total Public	694	509	73.3	100.0	325	100.0
North Atlantic	120	77	64.2	15.1	43	13.2
Great Lakes and Plains	189	141	74.6	27.7	80	24.6
Southeast	154	121	78.6	23.8	95	29.3
West and Southwest	229	168	73.4	33.0	105	32.3
Outlying Parts	2	2	100.0	0.4	2	0.6
Total Private	1,305	964	73.9	100.0	838	100.0
North Atlantic	436	337	77.3	35.0	273	32.6
Great Lakes and Plains	393	301	76.6	31.2	267	31.9
Southeast	281	190	67.6	19.7	179	21.3
West and Southwest	191	136	71.2	14.1	119	14.2
Outlying Parts	4	0	0.0	0.0	0	0.0

Office compilations show that more men than women students were housed in 1960-61; actually 398,227 to 349,760. Of the total number housed, approximately 5 percent were married couples, about 51 percent single men, and 44 percent single women. The largest percentage of accommodations used by married couples was in the West and Southwest, 8 percent; the smallest in the North Atlantic, 2 percent. Accommodations used by men exceeded those used by women in each region except for the Great Lakes and Plains, where the percentages for men and women were equal.

The total number of students housed beyond normal capacity in 1960-61 by a portion of the institutions outnumbered the unused student stations in other institutions by 39,863 to 22,014. (See table 2.) This was a net overcrowding of residential facilities to the extent of 102 percent of normal capacity. (Among the three groups accommodated, the percentages of students accommodated to normal capacity were as follows: men, 102 percent; women, 104 percent; and married couples, 99 percent.) Some of the overcrowding resulted from "doubling up" in dormitory rooms and some from the continued use of substandard facilities such as Government surplus trailers and barracks.

Regionally, overcrowding ranged from 101 percent of normal capacity in the North Atlantic region to 103 percent in the Southeast. Among the individual States with high percentages of use of residential facilities were: Alabama, 109; Alaska, 112; Arizona, 106; Delaware, 112; Louisiana, 109; Michigan, 110; Mississippi, 108; New Jersey, 106; Ohio, 110; and Utah, 111.

It is probable that the degree of actual overcrowding in residential accommodations was much greater than a net difference between overages and underages would imply, since a considerable portion of the reported unused accommodations were not freely transferable to applicants rejected by overcrowded institutions and by institutions which, though not overcrowded, have established ceilings on their enrollment. Vacant student accommodations are not transferable between all-men's and all-women's schools. Unused dormitory space in junior colleges is of no interest to upper division applicants. Unused spaces at certain types of institutions, such as theological schools, Bible colleges, technical schools, professional schools, and teachers colleges, have limited significance to would-be students whose academic needs do not match the type classifications of the institutions with free space. Students do not readily cross lines of religious faith in the case of church-related schools.

With respect to future planning, the responding institutions, public and private combined, are planning to accommodate 405,618 more students (single and married) in residential facilities by 1965-66 than they did in 1960-61. Of that number, 208,279 are expected to be single men, 178,887 single women, and 18,452 married couples. These would represent a total increase of 51 percent (52 percent for single men, 51 percent for single women, and 43 percent for married couples).

Regionally, the percentages of planned expansion of residential accommodations range from a low of 43 in the North Atlantic region to a high of 58 in the West and Southwest region. Individual States planning large percentages of expansion are: Arizona, 63; Delaware, 89; Idaho, 69; Illinois, 67; Kansas, 70; Missouri, 66; Nebraska, 67; Nevada, 194; New Jersey, 70; New Mexico, 73; Utah, 74; Washington, 62; West Virginia, 67; Wisconsin, 68; and Wyoming, 96.

Table 2... Students in residential facilities of public and private higher education institutions, by 1960-61 and planned 1965-66 accommodation status, State, and region

State and Region	Existing in 1960-61					Planned for 1965-66	
	Students accommodated	Additional students who could have been accommodated	Students beyond normal capacity	Net capacity 1/	Percent of net capacity used 2/	Total planned accommodations	Percent increase over number accommodated in 1960-61 3/
	1	2	3	4	5	6	7
Aggregate U.S.	790,721	22,014	39,863	772,872	102.3	1,196,339	51.3
NORTH ATLANTIC	186,834	4,362	6,918	184,278	101.4	267,453	43.2
Connecticut	16,680	88	805	15,963	104.5	21,157	26.8
Delaware	2,232	40	277	1,995	111.9	4,208	88.5
D. C.	5,710	711	345	6,076	94.0	8,741	53.0
Maine	5,858	187	256	5,789	101.2	8,838	50.9
Maryland	10,180	168	346	10,002	101.8	15,708	52.5
Massachusetts	37,955	393	1,765	36,583	103.8	48,417	27.6
New Hampshire	6,805	106	99	6,812	99.9	8,280	21.7
New Jersey	9,661	227	778	9,110	106.0	16,455	70.3
New York	34,953	1,292	378	35,827	97.6	51,849	48.3
Pennsylvania	47,724	981	1,395	47,310	100.9	70,717	48.2
Rhode Island	4,492	65	255	4,302	104.4	6,739	50.0
Vermont	4,584	144	219	4,509	101.7	6,344	38.4
GREAT LAKES AND PLAINS	252,553	7,018	13,561	246,010	102.7	397,902	57.6
Illinois	40,488	642	935	40,195	100.7	67,776	67.4
Indiana	28,015	1,034	374	28,675	97.7	41,168	46.9
Iowa	21,444	1,513	878	22,079	97.1	31,490	46.8
Kansas	13,196	453	704	12,945	101.9	22,444	70.1
Michigan	33,556	497	3,566	30,487	110.1	53,215	58.6
Minnesota	16,202	984	892	16,294	99.4	24,760	52.8
Missouri	19,035	648	849	18,834	101.1	31,552	65.8
Nebraska	6,949	334	200	7,083	98.1	11,577	66.6
North Dakota	5,770	219	400	5,589	103.2	8,662	50.1
Ohio	45,006	98	4,270	40,834	110.2	68,806	52.9
South Dakota	5,323	286	141	5,468	97.3	6,880	29.3
Wisconsin	17,569	310	352	17,527	100.2	29,572	68.3
SOUTHEAST	205,470	6,258	12,306	199,422	103.0	300,653	46.3
Alabama	15,549	93	1,433	14,209	109.4	24,946	60.4
Arkansas	11,223	647	284	11,586	96.9	17,118	52.5
Florida	20,760	218	770	20,208	103.2	27,024	30.2
Georgia	19,167	758	776	19,149	100.1	30,953	61.5
Kentucky	12,977	907	1,174	12,710	102.1	20,548	58.3
Louisiana	13,964	195	1,297	12,862	108.6	22,541	61.4
Mississippi	16,239	699	1,922	15,016	108.1	24,666	51.9
North Carolina	33,769	621	2,512	31,878	105.9	45,678	35.3
South Carolina	16,740	469	195	17,014	98.4	21,117	26.1
Tennessee	16,220	1,041	762	16,499	98.3	24,711	52.3
Virginia	21,115	197	1,035	20,277	104.1	28,424	34.6
West Virginia	7,747	413	146	8,014	96.7	12,927	66.9
WEST AND SOUTHWEST	145,363	4,376	7,078	142,661	101.9	229,829	58.1
Alaska	640	---	66	574	111.5	820	28.1
Arizona	8,189	85	552	7,722	106.0	13,373	63.3
California	33,097	941	2,536	31,502	105.1	51,434	55.4
Colorado	13,419	78	592	12,905	104.0	19,907	48.3
Hawaii	398	6	---	404	98.5	2,405	4/
Idaho	3,575	164	97	3,642	98.2	6,025	68.5
Montana	3,329	130	89	3,370	98.8	4,638	39.3
Nevada	440	70	---	510	86.3	1,292	193.6
New Mexico	4,970	241	263	4,948	100.4	8,599	73.0
Oklahoma	11,439	579	244	11,774	97.2	17,493	52.9
Oregon	11,729	447	454	11,722	100.1	18,168	54.9
Texas	34,141	1,487	1,484	34,144	100.0	52,312	53.2
Utah	3,152	15	330	2,837	111.1	5,488	74.1
Washington	15,175	130	333	14,972	101.4	24,601	62.1
Wyoming	1,670	3	38	1,635	102.1	3,274	96.0
OUTLYING PARTS	501	---	---	501	100.0	502	0.2
Canal Zone	39	---	---	39	100.0	40	2.6
Puerto Rico	462	---	---	462	100.0	462	---

--- Indicates zero

1/ Net capacity derived by adding columns 1 and 2 and subtracting column 3.

2/ Column 1 divided by column 4.

3/ Column 6 minus column 1 divided by column 1.

4/ Insufficient data.

Table 3.__

Students in residential facilities of public higher education institutions, by 1960-61 and planned 1965-66 accommodation status, State, and region.

State and Region	Existing in 1960-61					Planned for 1965-66	
	Students accommodated	Additional students who could have been accommodated.	Students beyond normal capacity	Net capacity 1/	Percent of net capacity used 2/	Total planned accommodations	Percent increase over number accommodated in 1960-61 3/
	1	2	3	4	5	6	7
Aggregate U.S.	410,744	8,493	26,326	392,911	104.5	642,948	56.5
NORTH ATLANTIC	41,808	804	1,905	40,707	102.7	68,124	62.9
Connecticut	7,613	30	177	7,466	102.0	9,545	25.4
Delaware	2,074	40	277	1,837	112.9	3,858	86.0
D. C.	---	---	---	---	---	---	---
Maine	2,921	75	19	2,977	98.1	4,835	65.5
Maryland	5,906	100	261	5,745	102.8	10,142	71.7
Massachusetts	5,226	28	70	5,184	100.8	8,571	64.0
New Hampshire	2,757	73	99	2,731	101.0	3,166	14.8
New Jersey	1,575	---	90	1,485	106.1	3,085	95.9
New York	60	---	---	60	4/	352	4/
Pennsylvania	9,897	318	622	9,593	103.2	18,644	88.4
Rhode Island	1,870	---	185	1,685	111.0	3,023	61.7
Vermont	1,909	140	105	1,944	98.2	2,903	52.1
GREAT LAKES AND PLAINS	144,312	3,546	10,666	137,192	105.2	233,477	61.8
Illinois	15,887	166	306	15,747	100.9	30,169	89.9
Indiana	17,897	445	157	18,185	98.4	26,741	49.4
Iowa	10,963	1,050	692	11,321	96.8	13,472	22.9
Kansas	8,303	---	522	7,781	106.7	14,893	79.4
Michigan	25,303	230	3,395	22,138	114.3	41,133	62.6
Minnesota	8,618	924	236	9,306	92.6	14,288	65.8
Missouri	7,894	---	603	7,291	108.3	14,809	87.6
Nebraska	3,970	189	112	4,047	98.1	7,851	97.8
North Dakota	5,385	214	400	5,199	103.6	8,089	50.2
Ohio	25,946	---	3,996	21,950	118.2	39,513	52.3
South Dakota	4,206	286	---	4,492	93.6	5,063	20.4
Wisconsin	9,940	42	247	9,735	102.1	17,456	75.6
SOUTHEAST	131,586	1,913	10,115	123,384	106.6	193,712	47.2
Alabama	12,052	---	1,350	10,702	112.6	19,748	63.9
Arkansas	8,850	470	254	9,066	97.6	12,784	44.5
Florida	12,888	---	375	12,513	103.0	16,345	26.8
Georgia	11,876	178	742	11,312	105.0	19,726	66.1
Kentucky	8,034	244	1,040	7,238	111.0	12,410	54.5
Louisiana	10,636	48	1,230	9,454	112.5	17,021	60.0
Mississippi	13,601	452	1,780	12,273	110.8	20,777	52.8
North Carolina	18,668	70	2,024	16,714	111.7	24,928	33.5
South Carolina	10,891	100	136	10,855	100.3	13,593	24.8
Tennessee	6,091	---	392	5,699	106.9	10,171	67.0
Virginia	12,934	56	712	12,278	105.3	17,353	34.2
West Virginia	5,065	295	80	5,280	95.9	8,856	74.8
WEST AND SOUTHWEST	92,537	2,230	3,640	91,127	101.5	147,133	59.0
Alaska	640	---	66	574	111.5	820	28.1
Arizona	7,788	62	552	7,298	106.7	12,749	63.7
California	11,808	329	198	11,939	98.9	18,736	58.7
Colorado	9,389	46	368	9,067	103.6	13,325	41.9
Hawaii	380	---	---	380	100.0	1,377	262.4
Idaho	2,581	59	57	2,583	99.9	3,771	46.1
Montana	2,695	75	89	2,681	100.5	3,496	29.7
Nevada	440	70	---	510	86.3	1,292	193.6
New Mexico	4,914	241	263	4,892	100.4	8,495	72.9
Oklahoma	9,601	345	174	9,772	98.3	14,776	53.9
Oregon	7,629	314	195	7,748	98.5	11,715	53.6
Texas	20,212	563	1,257	19,518	103.6	31,684	56.8
Utah	2,922	15	330	2,607	112.1	5,138	75.8
Washington	9,868	108	53	9,923	99.4	16,485	67.1
Wyoming	1,670	3	38	1,635	102.1	3,274	96.0
OUTLYING PARTS	501	---	---	501	100.0	502	0.2
Canal Zone	39	---	---	39	100.0	40	2.6
Puerto Rico	462	---	---	462	100.0	462	0.0

--- Indicates zero

1/ Net capacity derived by adding columns 1 and 2 and subtracting column 3.

2/ Column 1 divided by column 4.

3/ Column 6 minus column 1 divided by column 1.

4/ Insufficient data.

Table 4.__ Students in residential facilities of private higher education institutions, by 1960-61 and planned 1965-66 accommodation status, State, and region.

State and Region	Existing in 1960-61					Planned for 1965-66	
	Students accommodated	Additional students who could have been accommodated	Students beyond normal capacity	Net capacity 1/	Percent of net capacity used 2/	Total planned accommodations	Percent increase over number accommodated in 1960-61 3/
	1	2	3	4	5	6	7
Aggregate U.S.	379,977	13,521	13,537	379,961	100.0	553,391	45.6
NORTH ATLANTIC	145,026	3,558	5,013	143,571	101.0	199,329	37.4
Connecticut	9,067	58	628	8,497	106.7	11,612	28.1
Delaware	158	---	---	158	100.0	350	121.5
D. C.	5,710	711	345	6,076	94.0	8,741	53.1
Maine	2,937	112	237	2,812	104.4	4,003	36.3
Maryland	4,274	68	85	4,257	100.4	5,566	30.2
Massachusetts	32,729	365	1,695	31,399	104.2	39,846	21.7
New Hampshire	4,048	33	---	4,081	99.2	5,114	26.3
New Jersey	8,086	227	688	7,625	106.0	13,370	65.3
New York	34,893	1,252	378	35,767	97.6	51,497	47.6
Pennsylvania	37,827	663	773	37,717	100.3	52,073	37.7
Rhode Island	2,622	65	70	2,617	100.2	3,716	41.7
Vermont	2,675	4	114	2,565	104.3	3,441	28.6
GREAT LAKES AND PLAINS	108,241	3,472	2,895	108,818	99.5	164,425	51.9
Illinois	24,601	476	629	24,448	100.6	37,607	52.9
Indiana	10,118	589	217	10,490	96.5	14,427	42.6
Iowa	10,481	463	186	10,758	97.4	18,018	71.9
Kansas	4,893	453	182	5,164	94.8	7,551	54.3
Michigan	8,253	267	171	8,349	98.9	12,082	46.4
Minnesota	7,584	60	656	6,988	108.5	10,472	38.1
Missouri	11,141	648	246	11,543	96.5	16,743	50.3
Nebraska	2,979	145	88	3,036	98.1	3,726	25.1
North Dakota	385	5	---	390	98.7	573	48.8
Ohio	19,060	98	274	18,884	100.9	29,293	53.7
South Dakota	1,117	---	141	976	114.4	1,817	62.7
Wisconsin	7,629	268	105	7,792	97.9	12,116	58.8
SOUTHEAST	73,884	4,345	2,191	76,038	97.2	106,941	44.7
Alabama	3,497	93	83	3,507	99.7	5,198	48.6
Arkansas	2,373	177	30	2,520	94.2	4,334	82.6
Florida	7,872	218	395	7,695	102.3	10,679	35.7
Georgia	7,291	580	34	7,837	93.0	11,227	54.0
Kentucky	4,943	663	134	5,472	90.3	8,138	64.6
Louisiana	3,328	147	67	3,408	97.7	5,520	65.9
Mississippi	2,638	247	142	2,743	96.2	3,889	47.4
North Carolina	15,101	551	488	15,164	99.6	20,750	37.4
South Carolina	5,849	369	59	6,159	95.0	7,524	28.6
Tennessee	10,129	1,041	370	10,800	93.8	14,540	43.5
Virginia	8,181	141	323	7,999	102.3	11,071	35.3
West Virginia	2,682	118	66	2,734	98.1	4,071	51.8
WEST AND SOUTHWEST	52,826	2,146	3,438	51,534	102.5	82,696	56.5
Alaska	---	---	---	---	----	---	----
Arizona	401	23	---	424	94.6	624	55.6
California	21,289	612	2,338	19,563	108.8	32,698	53.6
Colorado	4,030	32	224	3,838	105.0	6,582	63.3
Hawaii	18	6	---	24	4/	1,028	4/
Idaho	994	105	40	1,059	93.9	2,254	126.8
Montana	634	55	---	689	92.0	1,142	80.1
Nevada	---	---	---	---	----	---	----
New Mexico	56	---	---	56	100.0	104	85.7
Oklahoma	1,838	234	70	2,002	91.8	2,717	47.8
Oregon	4,100	133	259	3,974	103.2	6,453	57.4
Texas	13,929	924	227	14,626	95.2	20,628	48.1
Utah	230	---	---	230	100.0	350	52.2
Washington	5,307	22	280	5,049	105.1	8,116	52.9
Wyoming	---	---	---	---	----	---	----
OUTLYING PARTS	---	---	---	---	----	---	----
Canal Zone	---	---	---	---	----	---	----
Puerto Rico	---	---	---	---	----	---	----

--- Indicates zero

1/ Net capacity derived by adding columns 1 and 2 and subtracting column 3.

2/ Column 1 divided by column 4.

3/ Column 6 minus column 1 divided by column 1.

4/ Insufficient data.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education
HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

July 1962 OE-51004-6

EXPENDITURES PLANNED FOR HIGHER EDUCATION FACILITIES, 1961-65

by
Leslie F. Robbins, Specialist for Business Administration

Expenditures totalling $7.5 billion are planned for new college construction, renovation of existing buildings, and campus improvements to be completed between fall 1960 and fall 1965, according to responses from the "College and University Enrollment and Facilities Survey, 1961-65."[1] These responses comprise 1,600 or 80 percent of the higher education institutions (see table 1), representing 88 percent of the 1960 opening fall enrollment.[2] (The two previous Physical Facilities Series issues, OE-51004-4 and OE-51004-5, reported on 1,473 early responses as to plans for increases in student accommodations in instructional facilities and in residential facilities, respectively.)

With regard to the all-important question of sources of funds, there is more concern in planning the financing of nonrevenue-producing facilities such as instructional, research, and general facilities than in obtaining funds for such projects as dormitories, food service buildings, college unions, and bookstores. Table 2 combines the anticipated cost of planned facilities for instructional, research, and general purposes and shows the percentage expected to be derived from each of the principal sources. Public institutions expect 59 percent to come from governmental appropriations and tax levies, including 56 percent from State and local sources. They plan to obtain 19 percent by borrowing (general obligation bonds 18 percent), and 15 percent are expected from sources as yet unknown. Private institutions count on 54 percent of these funds to come from gifts and grants. Anticipated government sources total 11 percent (8.4 percent Federal funds). Borrowing is expected to furnish 11 percent, and source is not yet known for 20 percent.

Of the total expenditures anticipated in the 5-year period, $4,432 million is to be spent by publicly controlled institutions and $3,092 million by private institutions. At least 1,245 institutions plan to complete one or more projects, with the average at between 6 and 7 per campus, or a total of nearly 8,000 proposed projects. Responding institutions to the number of 355 did not indicate definite plans to build. (In addition to the 7,994 projects included in the analysis there were 431 other projects listed by total respondents as being in some stage of planning but on

---

[1] Part 4 of a 5-part study by the Office of Education, College and University Facilities Survey.

[2] Opening (Fall) Enrollment in Higher Education, 1960: Institutional Data (OE-54003-60). (It should be noted that opening fall enrollment consists of degree-credit enrollment and includes extension students.)

Table 1.--Response rate and regional distribution of respondents, by control

Region	Response rate of institutions, by region and control			Distribution by region		
	All institutions	Responding institutions	Response rate	Responding institutions (see col. 2)	Responding institutions planning construction	
				Percent	Number	Percent
	1	2	3	4	5	6
Total	1,999	1,600	80.0	100.0	1,245	100.0
North Atlantic	556	447	80.4	27.9	337	27.1
Great Lakes & Plains	582	476	81.8	29.8	351	28.2
Southeast	435	331	76.1	20.7	274	22.0
West & Southwest	420	343	81.7	21.4	281	22.6
Outlying Parts	6	3	50.0	0.2	2	0.1
Total Public	694	567	81.7	100.0	463	100.0
North Atlantic	120	90	75.0	15.9	76	16.4
Great Lakes & Plains	189	151	79.9	26.6	103	22.3
Southeast	154	131	85.1	23.1	122	26.3
West & Southwest	229	193	84.3	34.0	160	34.6
Outlying Parts	2	2	100.0	0.4	2	0.4
Total Private	1,305	1,033	79.2	100.0	782	100.0
North Atlantic	436	357	81.9	34.5	261	33.4
Great Lakes & Plains	393	325	82.7	31.5	248	31.7
Southeast	281	200	71.2	19.4	152	19.4
West & Southwest	191	150	78.5	14.5	121	15.5
Outlying Parts	4	1	25.0	0.1	0	0.0

Table 2.-- Sources of estimated funds for instructional, research, and general facilities combined, by control: Aggregate U.S., fall 1960 to fall 1965
(Estimated costs are in thousands of dollars)

Source	Public		Private	
	Cost	Percent	Cost	Percent
Total	$2,966,363	100.0	$1,934,944	100.0
Government appropriations and tax levies	1,756,826	59.2	212,289	11.0
State and local	1,660,504	56.0	49,800	2.6
Federal	96,322	3.2	162,489	8.4
Borrowing	551,104	18.6	207,202	10.7
General obligation bonds	526,356	17.7	101,740	5.3
From commercial lenders	11,500	0.4	59,014	3.0
From endowment and other campus funds	13,248	0.5	46,448	2.4
Gifts and grants	104,620	3.5	1,051,685	54.4
All other known sources	124,997	4.2	84,103	4.3
Sources not yet known	428,815	14.5	379,665	19.6

which no estimate of cost was given, or which for other reasons were not usable in this study.)

Table 3 shows number and costs of projects planned by total public and private institutions, according to functional type and by State and region. Tables 4 and 5 show planned project costs for public and private institutions, respectively. It will be noted from table 3 that over one-half of all expenditures are planned to be spent for instructional facilities. The total amounts planned for each functional type of facilities at public institutions (see table 4) represent the following percentages of total planned cost of $4,432 million: Instructional, 52; research, 8; general, 7; residential, 25; other auxiliary, 5; and campus improvements, 3. For private institutions (table 5), the percentages of the total planned cost of $3,092 million are approximately: Instructional, 48; research, 9; general, 6; residential, 29; other auxiliary, 7; and campus improvements, 1.

California led in the number and estimated cost of planned additional facilities of all functional types, with 825 projects costing nearly $964 million. (See table 3.) Following in order were New York with $591 million, Illinois with $579 million, and Pennsylvania with $534 million. These four States accounted for more than 35 percent of the dollar total. The next six States accounted for another 23 percent, namely: Michigan, $398 million; Massachusetts, $334 million; Ohio, $297 million; Indiana, $261 million; Wisconsin, $216 million; and New Jersey, $207 million. Respondents from these 10 States, while they constitute only 37 percent of the responding institutions, enroll 56 percent of the total enrollment of responding institutions and so represent the concentration of the larger institutions.

Table 6 shows regional distribution of planned expenditures per student, based on the institutions' 1960-61 full-time enrollments as reported in this survey, for each functional type of facilities and for public and private institutions. The expenditures distribution pattern for instructional facilities among public institutions shows $1,997 per student in the North Atlantic region as compared with $1,384 per student in the Southeast. For instructional facilities among private institutions, the variation was from $1,818 per student in the North Atlantic region to $1,320 in the West and Southwest.

Public institutions plan a high concentration of expenditures for research facilities in the West and Southwest region, $371 per student. Among private institutions it is the North Atlantic region which leads in planned expenditures for facilities for research purposes, $356 per student. It is pointed out that, unlike expenditures for instructional and residential facilities, expenditures for research facilities are not necessarily related to size of enrollment.

Planned per-student expenditures for residential facilities in public institutions ranged from $629 in the West and Southwest to $943 in the North Atlantic. However, for private institutions per-student expenditures had a narrower range, $872 in the Southeast to $1,076 in the West and Southwest.

There are too many widely varying types of expenditures included in "general facilities," a catch-all group of functions ranging from the expensive (nonteaching) hospital to the low-cost maintenance shop and warehouse, and in "campus improvements," to offer much enlightenment in analysis. An examination of the backup data reveals that nearly 75 percent of the $465 million to be expended for "other auxiliary" facilities was designated for buildings wherein the college union was either the primary or secondary function; hence the college union building tended to set the pattern for expenditures in this category of facilities.

Timing the completion of construction and remodeling projects to keep pace with the growing need is an important aspect of planning. For each project listed by respondents a selection among five possible stages of planning was afforded: (1) construction in progress, (2) plans approved by board and financing arranged, (3) plans approved but financing not yet arranged, (4) project but not plans approved, and (5) need recognized and project conceived but not yet approved. Table 7 distributes the total estimated cost (of planned instructional, research, and general facilities only) among these five planning stages and computes the percentage

Table 3. -- Number and estimated cost of construction and rehabilitation projects and campus improvements planned by public and private higher education institutions, first term 1960-61 to first term 1965-66, by functional type, State, and region

(Estimated costs are in thousands of dollars)

Region and State	No. of institutions	Total all projects		Instructional		Research		General		Residential		Other Auxiliary		Campus 1/ Improvements	
		No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost
Aggregate U. S.	1,245	7,994	$7,524,590	3,417	$3,801,228	427	$623,550	810	$476,528	2,138	$1,986,657	709	$465,172	493	$171,455
N. Atlantic	337	1,837	2,070,260	784	1,049,019	103	176,870	176	116,302	508	557,146	182	146,798	84	24,125
Connecticut	20	81	99,873	33	57,462	---	---	3	2,531	33	33,389	10	5,781	2	710
Delaware	4	25	19,715	12	10,784	---	---	3	763	6	7,113	3	995	1	60
D. C.	7	44	53,135	20	32,679	3	2,966	4	2,875	15	14,165	2	450	---	---
Maine	12	71	35,425	26	13,837	---	---	9	3,710	21	15,875	7	1,318	8	685
Maryland	17	150	114,257	45	42,069	29	29,745	19	9,287	31	22,543	17	8,968	9	1,645
Mass.	56	263	333,602	125	171,721	10	10,664	19	17,062	71	101,131	32	30,224	6	2,800
N.Hampshire	9	55	42,835	18	16,455	---	---	6	3,136	20	11,521	9	11,503	2	220
New Jersey	26	203	207,195	80	88,850	12	17,907	20	13,832	50	53,844	20	24,916	21	7,846
New York	88	413	591,452	197	297,925	35	89,290	32	21,806	103	149,019	36	30,901	10	2,511
Pa.	84	463	533,616	198	296,776	12	24,546	55	40,172	132	135,586	42	28,892	24	7,644
R. I.	6	32	20,636	15	9,387	1	344	3	468	10	7,833	2	2,600	1	4
Vermont	8	37	18,519	15	11,074	1	1,408	3	660	16	5,127	2	250	---	---
Great Lakes and Plains	351	2,344	2,382,917	1,004	1,238,605	124	166,797	243	159,723	641	633,779	183	121,656	149	62,357
Illinois	56	357	578,716	149	309,569	25	55,633	41	32,213	90	121,882	31	34,904	21	24,515
Indiana	29	206	260,665	78	115,719	7	13,660	30	23,480	61	91,223	16	10,706	14	5,877
Iowa	29	195	121,853	74	48,838	13	11,779	25	12,345	56	32,605	18	12,412	9	3,874
Kansas	28	173	115,840	70	62,043	8	1,942	10	4,431	58	37,825	17	7,408	10	2,191
Michigan	36	267	398,307	138	253,046	17	28,620	21	22,371	64	83,647	14	8,068	13	2,555
Minnesota	22	220	138,771	116	82,318	4	2,717	26	14,348	38	31,331	9	4,237	27	3,820
Missouri	35	214	165,732	83	75,842	12	15,898	21	7,790	63	49,163	20	12,789	15	4,250
Nebraska	15	71	40,601	30	16,809	3	3,300	10	2,125	24	16,007	4	2,360	---	---
N. Dakota	10	55	24,716	21	11,539	---	---	8	3,723	18	7,751	6	1,674	2	29
Ohio	48	337	296,858	135	117,643	22	17,882	32	22,347	92	112,685	30	15,772	26	10,529
S. Dakota	9	43	24,820	19	13,926	---	---	---	---	15	7,358	6	3,141	3	395
Wisconsin	34	206	216,038	91	131,313	13	15,366	19	14,550	62	42,302	12	8,185	9	4,322
Southeast	274	1,850	1,192,382	798	609,519	59	57,191	160	62,469	553	352,394	181	87,850	99	22,959
Alabama	19	197	123,655	74	56,734	5	6,691	17	7,190	71	44,368	16	7,506	14	1,166
Arkansas	9	99	43,896	43	19,622	3	4,445	9	1,881	26	12,919	14	4,289	4	740
Florida	28	144	113,553	90	76,861	3	1,253	11	1,524	20	25,066	13	8,157	7	692
Georgia	32	186	114,505	78	53,884	5	9,213	16	9,374	68	36,253	18	5,581	1	200
Kentucky	23	146	94,588	63	42,775	2	6,750	14	4,193	50	31,485	12	6,421	5	2,964
Louisiana	15	133	128,531	60	70,367	2	725	15	10,650	38	31,636	11	11,163	7	3,990
Miss.	19	120	69,394	44	30,976	3	4,353	2	725	52	25,808	13	7,384	6	148
N. C.	38	287	196,978	129	113,943	9	8,184	29	9,821	65	46,479	35	16,363	20	2,188
S. C.	18	74	31,240	29	14,045	1	1,083	3	675	32	13,162	7	2,185	2	90
Tennessee	30	149	92,639	64	41,978	6	8,305	15	3,704	45	30,231	13	3,031	6	5,390
Virginia	26	241	134,459	103	68,795	20	6,189	21	7,622	54	37,734	20	9,953	23	4,166
W. Va.	17	74	48,944	21	19,539	---	---	8	5,110	32	17,253	9	5,817	4	1,225
West and Southwest	281	1,951	1,871,822	823	897,656	141	222,692	231	138,034	435	443,158	162	108,793	159	61,489
Alaska	1	26	17,479	10	6,421	2	390	3	3,604	4	5,500	2	1,200	5	364
Arizona	6	100	78,680	44	30,546	5	2,245	14	9,999	18	24,341	7	2,539	12	9,010
Calif.	114	825	963,670	375	528,184	80	152,819	108	63,487	104	132,356	63	50,228	95	36,596
Colorado	15	133	132,556	62	71,688	14	8,339	12	3,977	24	35,567	10	10,054	11	2,931
Hawaii	3	27	21,731	7	4,262	3	5,391	2	1,194	10	7,906	5	2,978	---	---
Idaho	7	32	18,925	17	10,199	---	---	4	1,077	6	4,510	4	2,989	1	150
Montana	5	32	16,041	11	3,549	2	950	2	550	12	8,606	5	2,384	---	---
Nevada	1	15	11,568	7	6,813	---	---	---	---	4	3,710	1	603	3	442
N. Mexico	6	45	35,047	22	18,179	2	2,508	4	1,170	14	10,415	2	1,775	1	1,000
Oklahoma	17	88	50,879	37	23,870	---	---	10	3,305	31	21,233	5	1,224	5	1,247
Oregon	18	103	81,698	40	37,193	6	5,381	9	7,530	37	27,353	10	4,168	1	73
Texas	59	286	190,258	93	65,716	8	20,344	33	13,252	117	74,917	33	15,839	2	190
Utah	6	80	114,099	36	47,340	4	5,914	14	19,037	14	30,864	5	8,970	7	1,974
Wash.	19	146	131,376	58	42,197	15	18,411	15	9,435	34	50,843	10	3,842	14	6,648
Wyoming	4	13	7,815	4	1,499	---	---	1	417	6	5,035	---	---	2	864
Outlying Parts	2	12	7,209	8	6,429	---	---	---	---	1	180	1	75	2	525
Canal Zone	1	2	980	1	800	---	---	---	---	1	180	---	---	---	---
Puerto Rico	1	10	6,229	7	5,629	---	---	---	---	---	---	1	75	2	525

1/ Included in campus improvements are land acquisition, landscaping, roads, walks, bridges, parking lots, and extension of utilities.

Table 4. -- Number and estimated cost of construction and rehabilitation projects and campus improvements planned by public higher education institutions, fall term 1960-61 to fall term 1965-66, by functional type, State, and region

(Estimated costs are in thousands of dollars)

Region and State	No. of institutions	Total all projects		Instructional		Research		General		Residential		Other Auxiliary		Campus 1/ Improvements	
		No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost	No. of projects	Cost
Aggregate U. S.	463	4,337	$4,432,439	1,956	$2,322,186	269	$351,032	469	$293,144	958	$1,101,895	322	$237,170	363	$127,012
N. Atlantic	76	615	633,265	265	335,980	26	37,222	66	41,378	149	158,708	67	46,221	42	13,756
Connecticut	5	26	27,448	9	14,807	---	---	1	1,385	12	8,800	3	1,756	1	700
Delaware	2	20	17,615	9	9,459	---	---	3	763	5	6,763	2	570	1	60
D. C.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Maine	6	41	23,926	16	9,519	---	---	5	1,605	14	12,087	2	268	4	447
Maryland	8	83	61,657	29	28,114	12	11,280	9	2,137	16	14,523	10	4,073	7	1,530
Mass.	11	51	73,431	22	39,609	1	1,999	5	3,333	16	23,012	5	5,288	2	190
N.Hampshire	3	28	18,016	9	8,335	---	---	3	786	9	6,147	6	2,703	1	45
New Jersey	8	100	112,538	48	53,870	9	9,602	10	9,137	15	19,986	11	13,768	7	6,175
New York	14	42	100,138	25	73,195	1	10,000	4	3,858	5	7,865	6	5,020	1	200
Pa.	15	187	170,843	78	82,565	2	2,933	23	17,864	47	52,847	19	10,225	18	4,409
R. I.	1	17	14,525	10	7,842	---	---	1	300	5	4,083	1	2,300	---	---
Vermont	3	20	13,128	10	8,665	1	1,408	2	210	5	2,595	2	250	---	---
Great Lakes and Plains	103	1,233	1,557,167	583	867,749	86	94,264	140	103,525	255	393,706	66	56,236	103	41,687
Illinois	11	146	337,613	73	214,221	9	9,583	22	19,401	20	63,912	11	17,869	11	12,627
Indiana	5	108	191,021	43	85,649	4	10,257	14	12,384	29	70,380	6	6,724	12	5,627
Iowa	6	77	67,583	35	27,032	13	11,779	12	9,195	8	9,865	3	5,923	6	3,789
Kansas	8	100	87,578	43	48,181	8	1,942	8	4,171	28	27,515	6	3,744	7	2,025
Michigan	16	195	343,057	104	218,940	17	28,620	15	17,492	39	70,770	7	4,680	13	2,555
Minnesota	7	156	91,908	86	54,819	4	2,717	20	10,573	16	18,092	6	2,312	24	3,395
Missouri	5	66	48,728	25	15,431	1	2,400	8	1,092	18	24,222	6	4,418	8	1,165
Nebraska	6	33	28,285	16	10,694	3	3,300	4	910	8	11,731	2	1,650	---	---
N. Dakota	9	53	24,251	21	11,539	---	---	8	3,723	17	7,545	5	1,415	2	29
Ohio	9	129	156,767	55	64,230	14	8,300	17	12,514	28	62,818	5	1,880	10	7,025
S. Dakota	7	37	20,790	18	12,426	---	---	---	---	11	5,228	5	2,741	3	395
Wisconsin	13	133	159,586	64	104,587	13	15,366	12	12,070	33	21,628	4	2,880	7	3,055
Southeast	122	1,096	772,223	501	381,577	43	38,380	91	37,728	301	242,395	89	57,491	71	14,652
Alabama	8	133	108,016	53	50,932	5	6,691	11	6,415	47	37,633	7	5,261	10	1,084
Arkansas	6	66	36,027	34	16,813	2	4,195	8	1,831	12	9,199	7	3,299	3	690
Florida	21	115	67,574	74	39,360	3	1,253	9	1,094	10	18,518	12	6,657	7	692
Georgia	17	98	70,377	40	29,781	1	3,913	8	5,714	42	28,653	7	2,316	---	---
Kentucky	6	71	64,232	33	29,394	2	6,750	6	1,[illegible]92	24	21,199	2	3,662	4	1,735
Louisiana	10	95	83,757	41	41,756	2	725	11	8,0[illegible]	27	20,773	7	8,433	7	3,990
Miss.	11	87	62,997	32	27,777	3	4,353	2	725	39	22,867	10	7,255	1	20
N. C.	13	148	103,291	68	[illegible],141	4	3,228	14	3,233	28	28,469	18	10,522	16	1,698
S. C.	4	23	18,895	11	8,962	1	1,083	---	---	11	8,850	---	---	---	---
Tennessee	5	42	22,828	21	10,771	---	---	3	437	17	11,520	1	100	---	---
Virginia	10	167	99,519	77	54,180	20	6,189	13	4,947	25	24,444	12	5,991	20	3,768
W. Va.	11	51	34,710	17	15,710	---	---	6	3,760	19	10,270	6	3,995	3	975
West and Southwest	160	1,381	1,462,575	599	730,451	114	181,166	172	110,513	252	306,906	99	77,147	145	56,392
Alaska	1	26	17,479	10	6,421	2	390	3	3,604	4	5,500	2	1,200	5	364
Arizona	5	95	77,710	44	30,546	5	2,245	13	9,749	15	23,780	6	2,380	12	9,010
Calif.	64	572	761,050	269	437,752	57	122,843	85	54,194	32	73,810	42	40,087	87	32,364
Colorado	9	108	112,405	49	62,581	14	8,339	9	2,650	17	26,182	8	9,722	11	2,931
Hawaii	1	23	21,514	5	4,242	3	5,391	2	1,194	8	7,709	5	2,978	---	---
Idaho	3	19	11,853	9	5,687	---	---	3	677	4	3,000	3	2,489	---	---
Montana	3	19	10,584	9	2,712	2	950	---	---	6	5,465	2	1,457	---	---
Nevada	1	15	11,568	7	6,813	---	---	---	---	4	3,710	1	603	3	442
N. Mexico	6	45	35,047	22	18,179	2	2,508	4	1,170	14	10,415	2	1,775	1	1,000
Oklahoma	12	75	44,556	34	22,215	---	---	9	1,305	24	19,007	3	782	5	1,247
Oregon	8	68	68,174	28	33,183	5	4,831	8	7,430	21	19,707	5	2,950	1	73
Texas	30	137	108,205	39	33,418	6	13,044	13	5,379	67	50,572	12	5,792	---	---
Utah	4	63	70,137	30	33,638	3	2,214	11	14,727	10	14,894	3	2,790	6	1,874
Wash.	9	103	104,478	40	31,565	15	18,411	11	8,017	20	38,120	5	2,142	12	6,223
Wyoming	4	13	7,815	4	1,499	---	---	1	417	6	5,035	---	---	2	864
Outlying Parts	2	12	7,209	8	6,429	---	---	---	---	1	180	1	75	2	525
Canal Zone	1	2	980	1	800	---	---	---	---	1	180	---	---	---	---
Puerto Rico	1	10	6,229	7	5,629	---	---	---	---	---	---	1	75	2	525

1/ Included in campus improvements are land acquisition, landscaping, roads, walks, bridges, parking lots, and extension of utilities.

Table 5. -- Number and estimated cost of construction and rehabilitation projects and campus improvements planned by private higher education institutions, fall term 1960-61 to fall term 1965-66, by functional type, State, and region

(Estimated costs are in thousands of dollars)

Region and State	No. of insti-tutions	Total all projects		Instructional		Research		General		Residential		Other Auxiliary		Campus 1/ Improvements	
		No. of proj-ects	Cost	No. of proj-ects	Cost	No. of proj-ects	Cost	No. of proj-ects	Cost	No. of proj-ects	Cost	No. of proj-ects	Cost	No. of proj-ects	Cost
Aggregate U. S.	782	3,657	$3,092,151	1,461	$1,479,042	158	$272,518	341	$183,384	1,180	$884,762	387	$228,002	130	$44,443
N. Atlantic	261	1,222	1,436,995	519	713,039	77	139,648	110	74,924	359	398,438	115	100,577	42	10,369
Connecticut	15	55	72,425	24	42,655	---	---	2	1,146	21	24,589	7	4,025	1	10
Delaware	2	5	2,100	3	1,325	---	---	---	---	1	350	1	425	---	---
D. C.	7	44	53,135	20	32,679	3	2,966	4	2,875	15	14,165	2	450	---	---
Maine	6	30	11,499	10	4,318	---	---	4	2,105	7	3,788	5	1,050	4	238
Maryland	9	67	52,600	16	13,955	17	18,465	10	7,150	15	8,020	7	4,895	2	115
Mass.	45	212	260,171	103	132,112	9	8,665	14	13,729	55	78,119	27	24,936	4	2,610
N.Hampshire	6	27	24,819	9	8,120	---	---	3	2,350	11	5,374	3	8,800	1	175
New Jersey	18	103	94,657	32	34,980	3	8,305	10	4,695	35	33,858	9	11,148	14	1,671
New York	74	371	491,314	172	224,730	34	79,290	28	17,948	98	141,154	30	25,881	9	2,311
Pa.	69	276	362,773	120	214,211	10	21,613	32	22,308	85	82,739	23	18,667	6	3,235
R. I.	5	15	6,111	5	1,514	1	344	2	168	5	3,750	1	300	1	4
Vermont	5	17	5,391	5	2,409	---	---	1	450	11	2,532	---	---	---	---
Great Lakes and Plains	248	1,111	825,750	421	370,856	38	72,533	103	56,198	386	240,073	117	65,420	46	20,670
Illinois	45	211	241,103	76	95,348	16	46,050	19	12,812	70	57,970	20	17,035	10	11,888
Indiana	24	98	69,644	35	30,070	3	3,403	16	11,096	32	20,843	10	3,982	2	250
Iowa	23	118	54,270	39	21,806	---	---	13	3,150	48	22,740	15	6,489	3	85
Kansas	20	73	28,262	27	13,862	---	---	2	260	30	10,310	11	3,664	3	166
Michigan	20	72	55,250	34	34,106	---	---	6	4,879	25	12,877	7	3,388	---	---
Minnesota	15	64	46,863	30	27,499	---	---	6	3,775	22	13,239	3	1,925	3	425
Missouri	29	148	117,004	58	60,411	11	13,498	13	6,698	45	24,941	14	8,371	7	3,085
Nebraska	9	38	12,316	14	6,115	---	---	6	1,215	16	4,276	2	710	---	---
N. Dakota	1	2	465	---	---	---	---	---	---	1	206	1	259	---	---
Ohio	39	208	140,091	80	53,413	8	9,582	15	9,833	64	49,867	25	13,892	16	3,504
S. Dakota	2	6	4,030	1	1,500	---	---	---	---	4	2,130	1	400	---	---
Wisconsin	21	73	56,452	27	26,726	---	---	7	2,480	29	20,674	8	5,305	2	1,267
Southeast	152	754	420,159	297	227,942	16	18,811	69	24,741	252	109,999	92	30,359	28	8,307
Alabama	11	64	15,639	21	5,802	---	---	6	775	24	6,735	9	2,245	4	82
Arkansas	3	33	7,869	9	2,809	1	250	1	50	14	3,720	7	990	1	50
Florida	7	29	45,979	16	37,501	---	---	2	430	10	6,548	1	1,500	---	---
Georgia	15	88	44,128	38	24,103	4	5,300	8	3,660	26	7,600	11	3,265	1	200
Kentucky	17	75	30,356	30	13,381	---	---	8	2,701	26	10,286	10	2,759	1	1,229
Louisiana	5	38	44,774	19	28,611	---	---	4	2,570	11	10,863	4	2,730	---	---
Miss.	8	33	6,397	12	3,199	---	---	---	---	13	2,941	3	129	5	128
N. C.	25	139	93,687	61	57,802	5	4,956	15	6,588	37	18,010	17	5,841	4	490
S. C.	14	51	12,345	18	5,083	---	---	3	675	21	4,312	7	2,185	2	90
Tennessee	25	107	69,811	43	31,207	6	8,305	12	3,267	28	18,711	12	2,931	6	5,390
Virginia	16	74	34,940	26	14,615	---	---	8	2,675	29	13,290	8	3,962	3	398
W. Va.	6	23	14,234	4	3,829	---	---	2	1,350	13	6,983	3	1,822	1	250
West and Southwest	121	570	409,247	224	167,205	27	41,526	59	27,521	183	136,252	63	31,646	14	5,097
Alaska	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	1	5	970	---	---	---	---	1	250	3	561	1	159	---	---
Calif.	50	253	202,620	106	90,432	23	29,976	23	9,293	72	58,546	21	10,141	8	4,232
Colorado	6	25	20,151	13	9,107	---	---	3	1,327	7	9,385	2	332	---	---
Hawaii	2	4	217	2	20	---	---	---	---	2	197	---	---	---	---
Idaho	4	13	7,072	8	4,512	---	---	1	400	2	1,510	1	500	1	150
Montana	2	13	5,457	2	837	---	---	2	550	6	3,143	3	927	---	---
Nevada	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N. Mexico	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oklahoma	5	13	6,323	3	1,655	---	---	1	2,000	7	2,226	2	442	---	---
Oregon	10	35	13,524	12	4,010	1	550	1	100	16	7,646	5	1,218	---	---
Texas	29	149	82,053	54	32,298	2	7,300	20	7,873	50	24,345	21	10,047	2	190
Utah	2	17	43,962	6	13,702	1	3,700	3	4,310	4	15,970	2	6,180	1	100
Wash.	10	43	26,898	18	10,632	---	---	4	1,418	14	12,723	5	1,700	2	425
Wyoming	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Outlying Parts	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Canal Zone	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Puerto Rico	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

1/ Included in campus improvements are land acquisition, landscaping, roads, walks, bridges, parking lots, and extension of utilities.

Table 6.--Regional distribution of per-student expenditures (based on 1960-61 full-time enrollment) planned for construction and rehabilitation from fall 1960 to fall 1965, by functional type of facilities and control

Control and region	Full-time students in respondent institutions	Per-student expenditures by functional type of facilities						
		All types	Instructional	Research	General	Residential	Other auxiliary	Campus improvements
Total	2,304,057	$3,266	$1,650	$271	$207	$862	$202	$74
North Atlantic	560,511	3,694	1,872	316	207	994	262	43
Great Lakes & Plains	714,811	3,333	1,733	233	223	887	170	87
Southeast	401,813	2,968	1,517	142	155	877	219	57
West & Southwest	614,724	3,045	1,460	362	225	721	177	100
Outlying Parts	12,198	591	527	-	-	15	6	43
Total Public	1,400,439	3,165	1,658	251	209	787	169	91
North Atlantic	168,213	3,764	1,997	221	246	943	276	82
Great Lakes & Plains	456,496	3,410	1,901	206	227	862	123	91
Southeast	275,653	2,801	1,384	139	137	879	209	53
West & Southwest	488,037	2,997	1,497	371	226	629	158	116
Outlying Parts	12,040	599	534	-	-	15	6	44
Total Private	903,618	3,422	1,637	302	203	979	252	49
North Atlantic	392,298	3,662	1,818	356	191	1,015	256	26
Great Lakes & Plains	258,315	3,197	1,436	281	218	929	253	80
Southeast	126,160	3,331	1,807	149	196	872	241	66
West & Southwest	126,687	3,231	1,320	328	217	1,076	250	40
Outlying Parts	158	-	-	-	-	-	-	-

Table 7.--Estimated cost and percentage distribution of total cost of planned instructional, research, and general facilities, by control and stage of planning: Aggregate United States, fall 1960 to fall 1965
(Cost is in thousands of dollars)

	Cost						
	Total	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	No stage indicated
Total	$4,901,306	$811,853	$725,328	$860,330	$1,348,456	$1,069,199	$86,140
Public	2,966,362	476,528	521,623	592,561	716,215	587,943	71,492
Private	1,934,944	335,325	203,705	267,769	632,241	481,256	14,648
	Percent						
Total	100.0	16.6	14.8	17.6	27.5	21.8	1.7
Public	100.0	16.1	17.6	20.0	24.1	19.8	2.4
Private	100.0	17.3	10.5	13.8	32.7	24.9	0.8

in each. The high percentages shown in stages 3, 4, and 5 are an indication of the degree of uncertainty as to completion of projects, since in none of these has financing been arranged; more than two-thirds of the projects, costwise, are in this status. Public institutions show a lesser degree of uncertainty (64 percent) than do private institutions (71 percent). For both public and private institutions the largest percentage was in the No. 4 stage of planning, project but not plans approved by the board.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education
HE
College and University
Physical Facilities Series
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

OE-51004-7
June 1962

CLASSROOM FACILITIES PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

Publicly controlled higher education buildings of the United States housed a total of 34,673 general or academic classrooms as of December 31, 1957; the classrooms contained 25,016,000 square feet of assignable area and encompassed 1,460,096 student stations (table 1). Privately controlled higher education buildings housed a total of 30,685 general or academic classrooms; the classrooms contained 20,713,900 square feet of assignable area and encompassed 1,211,717 student stations (table 3). These data were reported for the "Inventory of College and University Physical Facilities, December 31, 1957"[1] by 85.0 percent of the higher education institutions of the United States, which represented 95.7 percent of the fall 1957 enrollment in higher education.

Tables 1 and 3 (for public and private institutions, respectively) show State and regional distribution of classroom data by: (1) number of classrooms, (2) total assignable area, (3) classroom size, (4) number of student stations, (5) average classroom capacity, and (6) student station size. The assignable area of a classroom includes any auxiliary area devoted exclusively to the functions of the classroom. Assignable area is measured from the inside walls at floor level. A student station is considered to be a place at which a student may be located--for example, a lecture-room seat. The area of a classroom student station is therefore the assignable area required to provide all accommodations necessary for one student.

Tables 2 and 4 (for public and private institutions, respectively) report, by region, normative data for the classrooms, including means, medians, and interquartile ranges. Comparison of these tables reveals that public institutions tend to have larger classrooms than private ones. For all public institutions the mean classroom size was 721 square feet, varying from a mean of 670 square feet in the South to 761 square feet in the North Central region; for all private institutions the mean classroom size was 675 square feet, with essentially no difference in the North Central and West, and a 2 percent deviation above the national mean in the Northeast and 3 percent below in the South. Concomitantly, the mean number of student stations in classrooms of public institutions exceeded the mean number of student stations in classrooms of private institutions, 42 to 40. Interestingly, however, the mean student station size was the same for total public institutions as for total private institutions, 17.1 square feet.

List A presents, by State, the names and locations of buildings having at least 10 general or academic classrooms reported to have been occupied for the first time during the years 1953-57, the last 5 years of the period covered by this survey.

List B is a bibliography on classroom facilities planning.

---

[1] Part 3 of a 5-part study by the Office of Education, College and University Facilities Survey.

Table 1.--Number, assignable area, and student station size of general or academic classrooms at public higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region and State

Region and State	CLASSROOMS			STUDENT STATIONS		
	Number	Assignable area		Total	Mean number per classroom	Mean assignable area per student station (sq. ft.)
		Total (in hundreds of sq. ft.)	Mean per classroom (sq. ft.)			
AGGREGATE UNITED STATES....	35,108	253,450	721	1,477,487	42	17.2
CONTIGUOUS STATES[1/]........	34,673	250,160	721	1,460,096	42	17.1
NORTHEAST.........	3,992	30,347	760	164,109	41	18.5
Connecticut.................	71	566	797	2,755	39	20.5
Maine......................	180	1,352	751	7,131	40	19.0
Massachusetts..............	394	3,277	831	12,932	33	25.3
New Hampshire..............	135	980	725	7,869	58	12.5
New Jersey.................	523	4,157	794	18,079	35	23.0
New York...................	1,770	12,378	699	76,876	43	16.1
Pennsylvania...............	733	6,445	879	30,969	42	20.8
Rhode Island...............	68	424	623	2,834	42	15.0
Vermont....................	118	768	650	4,664	40	16.5
NORTH CENTRAL.......	9,668	73,619	761	462,674	47	15.9
Illinois...................	1,310	10,274	784	55,868	43	18.4
Indiana....................	683	4,994	731	35,890	53	13.9
Iowa.......................	733	5,540	755	39,041	53	14.2
Kansas.....................	858	6,172	719	36,050	42	17.1
Michigan...................	1,809	13,651	754	84,471	47	16.2
Minnesota..................	556	5,055	909	35,607	64	14.2
Missouri...................	649	4,829	744	30,508	47	15.8
Nebraska...................	476	3,411	716	21,284	45	16.0
North Dakota...............	342	2,468	721	13,954	41	17.7
Ohio.......................	1,259	9,601	762	66,870	53	14.4
South Dakota...............	304	2,185	718	11,475	38	19.0
Wisconsin..................	689	5,439	789	31,656	45	17.2
SOUTH...........	13,707	91,880	670	506,637	37	18.1
Alabama....................	765	5,488	717	24,870	33	22.1
Arkansas...................	541	3,580	661	19,653	36	18.2
Delaware...................	91	568	624	3,697	41	15.4
Florida....................	597	4,003	670	23,310	39	17.2
Georgia....................	1,163	6,546	562	32,040	28	20.4
Kentucky...................	586	4,425	755	25,368	43	17.4
Louisiana..................	830	5,897	710	37,563	45	15.7
Maryland...................	434	3,025	697	20,265	47	14.9
Mississippi................	1,094	6,168	563	28,686	26	21.5
North Carolina.............	1,055	6,969	660	38,947	37	17.9
Oklahoma...................	998	7,557	757	43,328	43	17.4
South Carolina.............	555	5,251	946	21,167	38	24.8
Tennessee..................	715	5,138	718	29,075	41	17.7
Texas......................	2,791	16,513	591	95,104	34	17.4
Virginia...................	810	5,856	722	33,185	41	17.6
West Virginia..............	528	3,719	704	23,562	45	15.8
District of Columbia.......	154	1,177	764	6,817	44	17.3
WEST............	7,306	54,314	743	326,676	45	15.6
Arizona....................	333	2,596	779	17,562	53	14.8
California.................	3,226	25,189	780	149,207	46	16.9
Colorado...................	615	4,363	709	28,301	46	15.4
Idaho......................	294	1,906	648	12,383	42	15.4
Montana....................	282	2,073	735	12,163	43	17.0
Nevada.....................	92	703	764	4,087	44	17.2
New Mexico.................	369	2,571	696	13,472	37	19.1
Oregon.....................	495	3,655	738	26,232	53	13.9
Utah.......................	449	3,085	687	18,738	42	16.5
Washington.................	952	6,984	733	37,884	40	18.4
Wyoming....................	199	1,189	597	6,647	33	17.9
U. S. SERVICE SCHOOLS...	116	729	628	2,217	19	32.9
OUTLYING PARTS.......	319	2,561	802	15,174	48	16.9
Alaska.....................	33	276	836	905	27	30.5
Canal Zone.................	(2/)	(2/)	-	(2/)	-	-
Guam.......................	(2/)	(2/)	-	(2/)	-	-
Hawaii.....................	98	847	864	6,585	67	12.9
Puerto Rico................	188	1,438	764	7,684	41	18.7

[1/] Excludes U. S. Service Schools.

[2/] Not reported.

Table 2.--Number, assignable area, and student station size of general or academic classrooms at public higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, based upon State means, by region: Contiguous States

Classrooms	Contiguous States	Region[1]			
		Northeast	North Central	South	West
a. Number of classrooms............	34,673	3,992	9,668	13,707	7,306
b. Total assignable area (in hundreds of sq.ft.).......	250,160	30,347	73,619	91,880	54,314
c. Number of student stations......	1,460,096	164,109	462,674	506,637	326,676
CLASSROOM SIZE (sq.ft.)					
d. Mean (line b ÷ line a)..........	721	743	761	670	743
e. Median.........................	725	720	754	669	751
f. Interquartile range.............	694-763	692-827	735-774	590-719	720-780
CLASSROOM CAPACITY (student stations)					
g. Mean (line c ÷ line a)..........	42	41	47	37	45
h. Median.........................	43	42	47	37	46
i. Interquartile range.............	37-46	40-47	44-53	34-42	41-48
STUDENT STATION SIZE (sq.ft.)					
j. Mean (line b ÷ line c)..........	17.1	18.5	15.9	18.1	16.6
k. Median.........................	17.2	16.6	16.2	17.5	16.8
l. Interquartile range.............	16.1-18.2	15.9-21.8	14.6-17.2	17.4-19.5	16.1-17.0

[1] See table 1 for inclusions.

Table 3.--Number, assignable area, and student station size of general or academic classrooms at private higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region and State

Region and State	CLASSROOMS			STUDENT STATIONS		
	Number	Assignable area		Total	Mean number per classroom	Mean assignable area per student station (sq. ft.)
		Total (in hundreds of sq. ft.)	Mean per classroom (sq. ft.)			
AGGREGATE UNITED STATES......	30,746	207,599	675	1,214,136	40	17.1
CONTIGUOUS STATES............	30,685	207,139	675	1,211,717	40	17.1
NORTHEAST...........	10,368	71,467	689	438,149	42	16.3
Connecticut....................	278	1,791	644	10,250	37	17.5
Maine..........................	168	1,035	616	6,047	36	17.1
Massachusetts..................	1,661	14,286	860	77,569	47	18.4
New Hampshire..................	205	1,280	624	8,314	41	15.4
New Jersey.....................	977	4,604	471	33,592	34	13.7
New York.......................	3,538	24,687	697	160,779	45	15.4
Pennsylvania...................	3,090	20,714	670	125,536	41	16.5
Rhode Island...................	284	2,060	725	10,625	37	19.4
Vermont........................	167	1,010	604	5,437	33	18.6
NORTH CENTRAL.........	8,547	57,928	677	339,466	40	17.1
Illinois.......................	1,817	12,960	713	76,887	42	16.9
Indiana........................	890	5,923	665	35,243	40	16.8
Iowa...........................	732	4,717	644	25,937	35	18.2
Kansas.........................	420	2,720	647	13,894	33	19.6
Michigan.......................	656	4,677	712	26,367	40	17.7
Minnesota......................	478	3,308	692	20,664	43	16.0
Missouri.......................	1,211	7,678	634	43,893	36	17.5
Nebraska.......................	259	1,883	727	11,106	43	17.0
North Dakota...................	22	122	554	1,022	47	11.9
Ohio...........................	1,395	9,409	674	56,853	41	16.5
South Dakota...................	163	879	539	4,968	31	17.7
Wisconsin......................	504	3,652	724	22,632	45	16.1
SOUTH.............	8,901	58,447	656	318,037	36	18.4
Alabama........................	366	2,481	677	16,734	46	14.8
Arkansas.......................	256	1,711	668	8,819	34	19.4
Delaware.......................	17	163	958	990	58	16.5
Florida........................	474	3,229	681	17,569	37	18.4
Georgia........................	1,021	4,366	427	23,313	23	18.7
Kentucky.......................	384	2,873	748	13,902	36	20.7
Louisiana......................	363	2,405	662	15,252	42	15.8
Maryland.......................	438	3,172	724	17,936	41	17.7
Mississippi....................	220	1,369	622	7,623	35	18.0
North Carolina.................	895	6,097	681	34,268	38	17.8
Oklahoma.......................	339	2,389	704	13,253	39	18.0
South Carolina.................	378	3,445	911	13,964	37	24.7
Tennessee......................	855	5,470	639	31,203	37	17.5
Texas..........................	1,680	11,041	657	54,542	33	20.2
Virginia.......................	549	3,750	683	19,303	35	19.4
West Virginia..................	135	869	643	4,771	35	18.2
District of Columbia...........	531	3,617	681	24,595	46	14.7
WEST..............	2,869	19,297	672	116,065	41	16.6
Arizona........................	36	183	508	970	27	18.9
California.....................	1,494	10,030	671	64,440	43	15.6
Colorado.......................	282	2,366	839	9,841	35	24.0
Idaho..........................	51	293	574	1,609	36	18.2
Montana........................	53	343	647	1,857	35	18.5
Nevada.........................	-	-	-	-	-	-
New Mexico.....................	12	97	803	540	45	18.0
Oregon.........................	335	2,208	659	11,541	35	19.1
Utah...........................	203	1,240	610	9,126	45	13.6
Washington.....................	403	2,537	629	16,141	40	15.7
Wyoming........................	-	-	-	-	-	-
OUTLYING PARTS.........	61	460	754	2,419	40	19.0
Alaska.........................	-	-	-	-	-	-
Canal Zone.....................	-	-	-	-	-	-
Guam...........................	-	-	-	-	-	-
Hawaii.........................	24	207	862	850	35	24.4
Puerto Rico....................	37	253	683	1,569	42	16.1

Table 4.--Number, assignable area, and student station size of general or academic classrooms at private higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, based upon State means, by region: Contiguous States

Classrooms	Contiguous States	Region[1/]			
		Northeast	North Central	South	West
a. Number of classrooms............	30,685	10,368	8,547	8,901	2,869
b. Total assignable area (in hundreds of sq.ft.).......	207,139	71,467	57,928	58,447	19,297
c. Number of student stations......	1,211,717	438,149	339,466	318,037	116,065
CLASSROOM SIZE (sq.ft.)					
d. Mean (line b ÷ line a)..........	675	689	677	656	672
e. Median..........................	672	686	676	670	656
f. Interquartile range.............	653-699	664-706	648-714	647-682	645-717
CLASSROOM CAPACITY (student stations)					
g. Mean (line c ÷ line a)..........	40	42	40	36	41
h. Median..........................	41	43	41	37	40
i. Interquartile range.............	36-43	40-45	37-47	32-38	36-43
STUDENT STATION SIZE (sq.ft.)					
j. Mean (line b ÷ line c)..........	17.1	16.3	17.1	18.4	16.6
k. Median..........................	16.9	16.1	17.4	18.5	15.5
l. Interquartile range.............	15.7-18.3	15.2-16.8	16.6-17.5	17.7-19.9	15.0-18.3

[1/] See table 3 for inclusions.

List A.--College and University Buildings Containing at Least 10 General or Academic Classrooms and Reported To Have Been Occupied for the First Time During the 1953-1957 Calendar Pentad: Aggregate United States

State and institution	Name of building	Year
Alabama		
Alabama State College	Councill Hall	1956
Howard College	Frank Park Samford Hall	1955
Miles College	Alabama Hall	1957
University of Alabama, Birmingham	Birmingham Center Building	1954
University of Alabama, Montgomery	Montgomery Center Building	1956
University of Alabama, University	Music and Speech Building	1955
Arkansas		
Harding College	American Studies Building	1953
California		
American River Junior College	Name not reported	1955
Bakersfield College	Business Building	1955
	Humanities Building	1955
California State Polytechnic College	Science and Classroom Building	1955
City College of San Francisco	Cloud Hall	1955
College of the Holy Names	Classroom Building	1957
Compton District Junior College	Instructional (Academic) Buildings (C, D-2, E-2, F-2)	1953
Diablo Valley College	Library-Classroom Building	1955
El Camino College	Commerce Building	1953
	New Social Science Classroom Building No. 2	1956
Fresno State College	Education-Psychology Building	1955
Long Beach State College	Classroom Wing No. 1	1954
	Classroom Wing No. 2	1954
	Classroom Wing No. 3	1956
	Language Arts Building	1954
Los Angeles State College of Applied Arts and Sciences	General Classroom Buildings F, J and K	1956
Northrop Institute of Technology	Engineering Building L	1956
Sacramento State College	Business Administration Building	1957
	Douglass Hall	1953
San Diego City College	Administration and Technology Building	1956
San Diego State College	Humanities-Social Sciences Building	1957
San Francisco State College	Business-Social Science Building	1953
	Education Building	1954
	Humanities-Language Arts Building	1957
San Jose City College	Original Portable Buildings	1953
	Vocational Center Building	1953
San Jose State College	Centennial Hall	1957
	Music Building	1953
Santa Monica City College	Science-Commerce Building	1953
United States Naval Postgraduate School	Root Hall No. 235	1954
University of California, Los Angeles	Humanities Building	1956
	Mathematical Sciences Building	1957
University of California, Riverside	Social Sciences-Humanities Building	1953

State and institution	Name of building	Year
California--con.		
University of California, Santa Barbara	Classroom and Office Building	1957
Vallejo Junior College	Administration Building	1954
Ventura College	Classroom Buildings J and K	1956
Contra Costa College	Humanities Building	1956
Colorado		
Colorado School of Mines	Alderson Hall	1953
Colorado State College	Frasier Hall	1954
Colorado State University	Engineering Building	1957
Pueblo Junior College	Administration Building	1956
Western State College of Colorado	Kelley Hall	1957
Connecticut		
Central Connecticut State College	Henry Barnard Hall	1953
Fairfield University	Canisius Hall	1957
Rensselaer Polytechnic Institute	Hartford Graduate Division Building	1955
Southern Connecticut State College	Administration-Classroom-Library Building	1953
Florida		
Florida Agricultural and Mechanical University	Jones Hall (Science)	1955
	Perry-Page Hall (Agriculture)	1956
	Tucker Hall	1957
Palm Beach Junior College	Building A	1956
Pensacola Junior College	Administration Building	1957
St. Petersburg Junior College	Class Building	1956
University of Florida	Matherly Hall	1954
	Stadium Building	1955
Georgia		
Atlanta University	Sage Hall	1953
Emory University, Atlanta	Bishops Hall	1957
Fort Valley State College	Hubbard Education Building	1957
Georgia State College of Business Administration	33 Gilmer Street	1955
Mercer University	Humanities Building	1957
Illinois		
Chicago Conservatory College	Creative Arts Center	1957
Illinois State Normal University	Schroeder Hall	1957
Illinois Wesleyan University	Shall Hall	1956
Northern Illinois University	Reavis Hall	1957
Northwestern University	Kresge Centennial Hall	1956
St. Xavier College	Classroom Building No. 2	1956
	Science Building No. 4	1956
Indiana		
Ball State Teachers College	Practical Arts Building	1954
Indiana State College	Education-Social Studies Building	1953
Marian College, Indianapolis	Marian Hall	1954
University of Notre Dame	Nieuwland Science Building	1953
Iowa		
Upper Iowa University	Colgrove-Walker Memorial Building	1956

State and institution	Name of building	Year
Iowa--con.		
Upper Iowa University--con.	College Hall	1957
Kansas		
Dodge City College	College Building	1957
University of Wichita	Engineering Building	1953
Washburn University of Topeka	Morgan Hall	1955
Kentucky		
Bellarmine College	Administration Building	1954
Centre College of Kentucky	The Weisiger Art and Music Building	1956
Louisiana		
Northeast Louisiana State College	Administration Building	1956
Southeastern Louisiana College	Tinsley Hall	1956
Maryland		
Morgan State College	Soldier's Armory	1957
Massachusetts		
Boston College	Campion Hall	1954
Northeastern University	Hayden Hall	1956
State College at Westfield	Administration Building	1956
Stonehill College	Holy Cross Hall	1957
University of Massachusetts	Machmer Hall	1957
Michigan		
Aquinas College	Administration Building	1955
Central Michigan University	Library Building	1954
Eastern Michigan University	Strong Science Building	1957
Flint Junior College	Curtice Building	1955
	Mott Arts and Science Building	1955
Lawrence Institute of Technology	Building A	1955
Michigan College of Mining and Technology	Civil and Geology Building	1957
Michigan State University of Agriculture and Applied Science	Music Building	1955
Siena Heights College	Angelicus Hall	1954
Wayne State University	Community Arts Building	1956
Missouri		
Central Bible Institute	W. I. Evans Hall	1956
Marillac College	Administration Building	1957
University of Kansas City	Grant Hall	1955
Montana		
Carroll College	Science Building	1957
Montana State College	Mathematics-Physics Building	1954
Montana State University	Liberal Arts Building	1954
Northern Montana College	Cowan Hall	1953
Nebraska		
College of Saint Mary	Administration Building	1955
University of Nebraska	Nebraska Psychiatric Institute	1953
Nevada		
University of Nevada	Ross Hall	1957

State and institution	Name of building	Year
New Jersey		
Fairleigh Dickinson University, Rutherford	East Rutherford Building	1957
Fairleigh Dickinson University, Teaneck	Williams Hall	1954
St. Peter's College	Dinneen Hall	1957
Seton Hall University, Paterson	Paterson School Building	1956
New York		
Agricultural and Technical Institute at Alfred	Industrial Laboratory Building	1955
Brooklyn College	Walt Whitman Hall	1954
College of Education at Fredonia	Administration-Classroom-Library Building	1953
College of Education at Potsdam	Administration-Classroom Building	1954
Hofstra College	Phillips Hall	1953
	Roosevelt Hall	1957
Manhattan College	Hayden Science Hall	1953
Mohawk Valley Technical Institute	New Hartford Building	1955
New School for Social Research	76 West 12th Street Building	1956
Orange County Community College	Hudson Hall	1955
Polytechnic Institute of Brooklyn	Rogers Hall	1954
Russell Sage College, Albany	Evening Division Building	1953
St. John's University, Long Island Division	Liberal Arts Building	1955
Staten Island Community College	50 Bay Street Building	1956
North Carolina		
Agricultural and Technical College of North Carolina	Cherry Hall	1955
	Hodgin Hall	1955
Atlantic Christian College	Classroom Building	1956
Duke University	Allen Building	1954
Meredith College	Joyner Hall	1956
North Carolina College at Durham	Commerce Building	1956
	Education Building	1955
University of North Carolina at Chapel Hill	Gardner Building	1953
	Hanes Hall	1953
Wake Forest College	Wait Chapel-Wingate Hall	1956
North Dakota		
Bismarck Junior College	Name not reported	1955
University of North Dakota	Education Building	1954
Ohio		
Ashland College	Administration Building	1954
Case Institute of Technology	Electrical Engineering Building	1955
Ohio State University	Law Building	1956
Ohio University	Copeland Hall	1956
The University of Akron	Kolbe Hall	1955
Oklahoma		
Benedictine Heights College	Administration and Classroom Building	1956
Oklahoma City University	Industrial Arts Building	1955
Oregon		
Linfield College	Riley Hall	1956
Multnomah College	Administration Building	1954

State and institution	Name of building	Year
Oregon--con.		
Portland State College	State Hall, N.W. Unit	1956
Willamette University	Auditorium-Fine Arts Building	1955
Pennsylvania		
Allegheny College	Quigley Hall	1953
Chatham College	Coolidge Hall of Humanities	1953
	Falk Hall of Social Studies	1953
	Braun Hall of Administration	1953
Eastern Pilgrim College	Rees Hall	1954
Gannon College	Engineering Building	1954
Holy Family College	College Building	1954
Immaculata College	Good Counsel Hall	1955
Indiana State College	Leonard Hall	1953
Lafayette College	Olin Hall of Science	1956
The Pennsylvania State University	Boucke Building	1956
Susquehanna University	Heilman Hall	1957
Temple University, Philadelphia	Curtis Hall	1955
Villanova University	Commerce and Finance Building	1957
Puerto Rico		
University of Puerto Rico	General Studies Building	1956
South Carolina		
South Carolina State College	Staley Building	1954
	Turner Hall	1956
University of South Carolina	Business Administration Building	1955
	School of Engineering Building	1955
Tennessee		
Christian Brothers College	Ave Maria Hall	1954
Fisk University	Park-Johnson Hall	1954
Memphis State University	Administration Building Annex	1953
University of Tennessee, Knoxville	Claxton Education Building	1956
Texas		
Abilene Christian College	Bible Building	1955
Amarillo College	Engineering Building	1956
Baylor University	Tidwell Building	1954
Kilgore College	Administration Building	1957
Lamar State College of Technology	Business School Building	1957
McMurray College	Cooke Hall	1957
Odessa College	Main Building	1953
St. Philip's College	Bowden Administration Building	1953
Southern Methodist University	Fincher Building	1954
	Selecman Hall	1953
Southwestern University	Alma Thomas Fine Arts Center and Theater	1956
	Fondren Science Hall	1954
Stephen F. Austin State College	C. W. Birdwell Building	1955
Texarkana College	Classroom Building	1956
Texas Christian University	Dann D. Rogers Hall	1957
	Undergraduate Religion Building	1954
Texas Woman's University	North Wing, Liberal Arts Building	1955
University of Dallas	Science Building	1956
University of Houston	Downtown School Building	1957

State and institution	Name of building	Year
Utah		
Brigham Young University	Family Living Center Building	1957
	McKay Building	1955
University of Utah	Orson Spencer Hall	1956
Utah State University of Agriculture and Applied Science	Edith Bowen Building	1956
Virginia		
Mary Washington College of the University of Virginia	Jessie Ball DuPont Hall	1953
Virginia Polytechnic Institute, Blacksburg	Commerce Hall	1957
	Williams Hall	1953
Washington		
Grays Harbor College	Classroom Building	1957
Olympic College	Science Building	1954
Seattle University	William Pigott Building	1957
University of Puget Sound	Music Building	1953
University of Washington	Communications Building	1955
	Drama-TV Building	1956
Whitworth College	Dixon Hall	1956
West Virginia		
Bluefield State College	Technical Science Building	1954
West Virginia University, Morgantown	Mechanical Hall No. 1	1957
West Virginia Wesleyan College	Lynch-Raine Administration Building	1955
Wisconsin		
Northwestern College	Classroom Building	1956
University of Wisconsin, Madison	Commerce Building	1954
Wisconsin State College, Oshkosh	Dempsey Hall	1956
Wyoming		
Casper Junior College	Main Hall	1955
Northwest Community College	Main Building	1955

List B.--Classroom Facilities Planning Bibliography

Air Conditioning Compared to Total Cost to Own and Operate Buildings. *Engineering News-Record*, 159:283, October 17, 1957.

Altfillisch, Charles. Administration Hall Houses Classroom Wing and Tower for Faculty. *College and University Business*, 14:3, 36-39, March 1953.

Atyeo, H. C. Teaching With Television. *Association of American Colleges Bulletin*, 44:265-274, May 1958.

Baker, James A., *and* Alfred W. Baxter, Jr. Space Formula Can Help Planners Determine Optimum Number and Sizes of Classrooms. *College and University Business*, 33:1, 27-31, July 1962.

Bell, George H. The Classroom Building. In *Planning Junior Colleges*. Sacramento: Department of Education, State of California, 1948. p. 20-21+.

Block-Type Designs, Lower Ceilings, Air Conditioning Urged for U. S. Buildings. *Architectural Forum*, 104:16, January 1956.

Burford, W. R. Classroom Building. Cotati, Calif.: Sonoma State College, October 1961. 154 p.

Butler, John H. College Planning. *College and University Business*, 28:1, 23-25, January 1960.

__________. Formula for Faculty Offices. *College and University Business*, 25:3, 25-27, September 1958.

Carpenter, C. R. Closed-Circuit TV for Resident Teaching. *College and University Business*, 24:2, 17, February 1958.

__________. That's Teaching by TV. *College and University Business*, 24:3, 45-47, March 1958.

Carpenter, C. R., *and* L. P. Greenhill. Closed-Circuit TV Is One Answer. *College and University Business*, 20:2, 23-28, February 1956.

Cato, Lamar Q. Texas State Administration and Classroom Building. *College and University Business*, 6:1, 16-17, January 1949.

Caudill, William W. An Experimental Study of Building Shapes. *College and University Business*, 11:2, 40-41, August 1951.

Close, Winston A. Windowless Classrooms in New Building for Social Science. *College and University Business*, 9:1, 32-33, July 1950.

Cocking, Walter D. Educational Planning of College Plants. *American School and University*, 29:111-120, 1957-1958.

College Buildings; Building Types Study. *Architectural Forum*, 117:125-154, January 1955.

Conrad, Lawrence H. Television's Role in Education. *American School and University*, 26:125, 1954-1955.

Cromwell, Edwin B. Classroom Buildings Sans Corridors. *College and University Business*, 6:5, 20-21, May 1949.

Crouch, C. L. Why 30 Footcandles Minimum for Schoolrooms. *Illuminating Engineering*, 45:6, 343-347, June 1950.

Cutler, M. Space Utilization and Classroom Assignment: Report of Workshop VI. *College and University*, 26:510-511, July 1951.

Davis, Harvey H., *and* Leslie G. Moeller. Promising Practices in the Educational Planning of New College Buildings. *American School and University*, 27:319-326, 1955-1956.

DeBernardis, Amo, and others. Planning the Classroom for New Instructional Media. In Planning Schools for New Media. Portland, Oreg.: Division of Education, Portland State College, 1961. p. 23-33.

__________. Television Facilities. In Planning Schools for New Media. Portland, Oreg.: Division of Education, Portland State College, 1961. p. 59-69.

Digest of a Restudy of the Needs of California in Higher Education. Berkeley: Printing Department, The University of California, 1955. p. 85-87.

Doi, James I. Planning for Faculty Office Space. Higher Education, 14:96-99, February 1958.

Dunham, F. Television's Part in the College and University Program. Higher Education, 13:105-110, February 1957.

Educational Specifications for the College Heights Campus. San Mateo, Calif.: College of San Mateo, June 1958. p. 15, 34-37.

Evenden, Edward F., Nicholaus L. Engelhardt, and George D. Strayer. Standards for College Buildings. New York: Bureau of Publications, Teachers College, Columbia University, 1938. 226 p.

Facilities Standards. In State College Administrative Manual. Sacramento: Department of Education, State of California, July 1960. Sec. 6100-6111.

Fowlkes, John Guy. Who Says There's a Classroom Shortage? College and University Business, 1:3, 25-27, September 1946.

Freese, Gordon P. Exploring Possibilities of Teaching by Closed-Circuit TV. College and University Business, 24:2, 24-26, February 1958.

Fuller, William S., and John B. Rork. Classroom Space per Student: Here's How to Figure It. College and University Business, 31:3, 43-47, September 1961.

__________. College Classroom Planning. Higher Education, 17:7, 13-14, April 1961.

Gilliland, John W., and Malcolm H. Rice. Planning a New College of Education Building. American School and University, 28:339-342, 1956-1957.

Graham, Marshall A. Space Formula Technic Aids Classroom Planning. College and University Business, 30:5, 68-70, May 1961.

Gregor, H. F. Slide Projection Techniques in the Geography Class. Journal of Geography, 55:298-303, September 1956.

Grunneyer, Inglis, Lewis, and Mattison. Television as a Teaching Medium. College and University Business, 22:4, 23-35, April 1957.

Ham, Marion A. North Carolina College's New Education Building. American School and University, 29:345-348, 1957-1958.

Hellerich, Mahlon H. What Type of Office Will the College Teacher Require by 1965? College and University Business, 27:4, 37-38, October 1959.

Huyer, Ann, A. J. Foy Cross, and Don White. Effective Use of Audio Visual Aids Through Building Design. American School and University, 25:349-358, 1953-1954.

Illuminating Engineering Society. Picture Projection Lighting. In IES Lighting Handbook, 3d ed. New York: The Society, 1959. Sec. 24, p. 26-42.

Kallenberger, Roy O. New Light in Old Classrooms. College and University Business, 22:2, 47-49, February 1957.

Kusch, Victor H. Comfortable Classrooms All Year Through. College and University Business, 22:5, 45-47, May 1957.

Lambert, A. C. Don't Plan Too Many Small Classrooms. College and University Business, 16:4, 47-48, April 1954.

__________. Standard Seating Capacity of General-Purpose Classrooms. American School Board Journal, 124:36-37, January 1952.

Lombardi, J., and C. W. Trigg. Classroom Utilization on an Over-Crowded Campus. Junior College Journal, 21:337-347, February 1951.

Loveless, M. W. Proper Planning for New Construction. In Proceedings: Southern Association of College and University Business Officers. Miami Beach, Fla.: The Association, April 13-15, 1950. p. 75.

Malter, Morton S. Audio-Visual Facilities in College and University Campuses. American School and University, 27:355-360, 1955-1956.

Masiko, Peter, Jr. Here's a College That Approaches Complete Use of Classroom Space. College and University Business, 20:5, 23-24, May 1956.

__________. Toward 100 Per Cent Classroom Utilization. Junior College Journal, 22:12-14, September 1951.

McCown, Henry Y. Space Utilization. In Proceedings: Central Association of College and University Business Officers. Stillwater, Okla.: The Association, April 25-27, 1954. p. 37-47.

Meem, John G. A Custom Designed Answer to One University's Needs for a Classroom Building. College and University Business, 10:6, 39-41, June 1951.

Moldstad, John. Audio-Visual Facilities for Better Instruction. The Nation's Schools, 63:80-82, February 1959.

Munger, G. R. There are Six Ways to Bring Down the Cost of Air Conditioning. Refrigerating Engineering, 64:46-50, October 1957.

National Education Association. Planning Schools for Use of Audio-Visual Materials - No. 1, Classrooms. Washington: The Association, Department of Audio-Visual Instruction, July 1952. 40 p.

New College Buildings. Architectural Forum, 102:126-141, March 1955.

New Thinking on College Building from 17 Colleges and Universities. Architectural Forum, 98:116-145, June 1953.

Nicholson, Arthur F. New Classroom Building for Indiana State Teachers College. American School and University, 27:337-340, 1955-1956.

Patterson, Dow. Determining Instructional Space Needs for Junior Colleges. The American School Board Journal, 141:5, 29-32, November 1960.

Report 21: An Approach to College Design. Oklahoma City: Caudill, Rowlett and Scott, n.d. 128 p.

A Restudy of the Needs of California in Higher Education. Sacramento: Department of Education, State of California, 1955. p. 312-313.

Rosamond, W. I. A Classroom Building Should Be Functional, Attractive, Economical. College and University Business, 16:1, 44-46, January 1954.

Schreiber, R. E. Recent Audio-Visual Materials for Geography. Audio Visual Guide, 22:18-25, January 1956.

Schwehr. Frederick E. (director). A Survey of Physical Facilities at Wisconsin State Colleges and the University of Wisconsin, Fall 1958, Joint Staff Study XXXIII, Part 1. Madison, Wis.: The Coordinating Committee for Higher Education, April 1960. 116 p.

Smith, Donovan E. Better Utilization--But Watch Out! College and University Business, 25:2, 17, August 1958.

__________. College and University Space Requirements. American School and University, 26:287-296, 1954-1955.

__________. Effective Use of Space. College and University Business, 19:3, 34-36, September 1955.

Sonnenfeld, Nathan J. Lighting Layouts for Educational TV. American School and University, 30:279, 282, 1958-1959.

Strub, G. F. Georgia Center for Continuing Education. The School Executive, 77:50-53, November 1957.

Terlow, Adrian L. Planning for Audio-Visual Education. In School Planning. New York: F. W. Dodge Corporation, 1951. p. 158-163.

Thompson, Kelly. "Step Schedule" Increases Classroom Utilization. College and University Business, 30:5, 66-67, May 1961.

U. S. Government to Air Condition Most New Future Buildings; Recommended Standards. Heating, Piping and Air Conditioning, 28:91-92, June 1956.

Vann, J. G. Classroom in the Round. College and University Business, 30:6, 56-58, June 1961.

White, K. Decorating College Buildings. American School and University, 24:363-366, 1952-1953.

Wiegand, W. H. Planning the Physical Plant for Teaching by Television. College and University Business, 25:3, 35-38, September 1958.

Will, Philip, Jr. Audio-Visual Classroom Planning. In School Planning. New York: F. W. Dodge Corporation, 1961. p. 167-177.

Wilson, Russell E. Educational Specifications, Part I. In School Plant Studies BT 1-24. Washington: American Architectural Foundation, American Institute of Architects, January-February 1955. 6 p.

__________. Educational Specifications, Part II. In School Plant Studies BT 1-24. Washington: American Architectural Foundation, American Institute of Architects, March-April 1956. 5 p.

Wimpress, G. D. Classroom Building at Whittier. College and University Business, 6:6, 16-17, June 1949.

Withy, John T. Interior Flexibility Makes a Building for the Future. College and University Business, 13:4, 34-37, October 1952.

Wittich, W. A. A-V Facilities. The Nation's Schools, 62:80+, November 1958.

Zorbaugh, H. Television and College Teaching. Journal of Educational Sociology, 31:329-379, May 1958.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

July 1962 OE-51004-8

MARRIED-STUDENT APARTMENT PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

Approximately 37,000 apartment units for married students were located on higher education campuses in the United States as of December 31, 1957, according to preliminary tabulation of responses for an inventory[1] of college and university physical facilities. (Responses were received from 85.0 percent of the higher education institutions, which represented 95.7 percent of the fall 1957 enrollment.)

In providing information for residential facilities for married students, institutions were requested to report assignable area in net square feet (measured from inside walls); closets, built-in furnishings, and other areas devoted exclusively to the apartment unit were to be included. Assignable area for apartment units included bedrooms, lounges, recreation rooms, food facilities, directors' and counselors' rooms, service rooms, and other assignable areas. Gross area reported was defined as "the sum of the areas at each floor level included within the principal outside faces of exterior walls, neglecting architectural setbacks or projections."

Mean assignable area per apartment unit for all married-student housing in the United States was 489.5 square feet (table 1). The table below presents regional means of assignable area per apartment, as well as medians and interquartile ranges.

Region	Assignable area (sq. ft.)		
	Mean	Median	Interquartile range
United States	489.5	508.2	451.1-532.5
Northeast	462.0	510.7	383.0-523.3
North Central	499.9	509.8	473.4-531.1
South	489.9	477.8	402.3-549.5
West	480.9	466.6	449.9-521.3

The ratio of assignable area to gross area in buildings devoted exclusively to married-student apartment units was computed. As reported in table 2, the total assignable area for the United States was 86.7 percent of the gross area. Regionally, the greatest deviation from this average occurred in the West; there it was 89.9.

Table 1 presents the assignable area for all married-student apartments when the respondent also reported the number of units, regardless of whether the building was used for married-student apartments exclusively or contained space for other functions. Table 2 includes both gross and assignable areas for only those buildings which contained married-student apartments exclusively. Assuming the relationship between assignable area and gross area per apartment unit to be the same as was found in apartment buildings (table 2), the mean gross area per apartment unit has been computed in table 3. Here regional variations are from 534.9 square feet in the West to 575.9 square feet in the North Central region, with a mean of 564.6 square feet for the United States.

---

[1] *Inventory of College and University Physical Facilities, December 31, 1957,* part 5 of a 5-part study by the Office of Education.

List A shows buildings occupied for the first time during the 1948-57 calendar decade by higher education institutions which provide married-student housing. List B is a bibliography for use in the planning of married-student housing.

Table 1.--Number and assignable area of married-student apartment units in buildings1/ occupied by higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region and State

Region and State	Number of apartment units	Assignable area: Total (in hundreds of sq.ft.)	Assignable area: Mean per apartment unit (sq.ft.)
AGGREGATE UNITED STATES	37,035	181,291	489.5
CONTIGUOUS STATES2/	36,977	181,009	489.5
NORTHEAST	3,219	14,872	462.0
Connecticut	22	126	572.7
Maine	170	730	429.4
Massachusetts	177	573	323.7
New Hampshire	90	490	544.4
New Jersey	668	3,361	503.1
New York	1,453	7,573	521.2
Pennsylvania	616	1,819	295.3
Rhode Island	0	0	-
Vermont	23	200	869.6
NORTH CENTRAL	13,514	67,559	499.9
Illinois	1,658	9,087	548.1
Indiana	1,657	8,774	529.5
Iowa	2,140	9,928	463.9
Kansas	844	4,048	479.6
Michigan	3,479	17,830	512.5
Minnesota	875	4,761	544.1
Missouri	572	2,747	480.2
Nebraska	372	1,280	344.1
North Dakota	464	2,484	535.3
Ohio	755	3,957	524.1
South Dakota	363	1,310	360.9
Wisconsin	335	1,353	403.9
SOUTH	13,658	66,904	489.9
Alabama	1,063	6,456	607.3
Arkansas	519	2,097	404.0
Delaware	0	0	-
Florida	966	3,724	385.5
Georgia	1,056	5,748	544.3
Kentucky	1,460	7,731	529.5
Louisiana	745	4,123	553.4
Maryland	210	821	391.0
Mississippi	713	4,645	651.5
North Carolina	671	3,459	515.5
Oklahoma	2,075	7,547	363.7
South Carolina	527	3,624	687.7
Tennessee	689	3,145	456.5
Texas	2,464	11,101	450.5
Virginia	335	1,886	563.0
West Virginia	80	290	362.5
District of Columbia	85	507	596.5
WEST	6,586	31,674	480.9
Arizona	300	1,129	376.3
California	1,146	5,179	451.9
Colorado	1,200	5,419	451.6
Idaho	270	1,118	414.1
Montana	449	2,234	497.6
Nevada	0	0	-
New Mexico	387	1,890	488.4
Oregon	682	3,816	559.5
Utah	1,024	4,902	478.7
Washington	910	5,031	552.9
Wyoming	218	956	438.5
U. S. SERVICE SCHOOLS	34	224	658.8
OUTLYING PARTS	24	58	241.7
Alaska	24	58	241.7
Canal Zone	(3/)	(3/)	-
Guam	(3/)	(3/)	-
Hawaii	0	0	-
Puerto Rico	0	0	-

1/ Includes only those buildings for which both number of apartment units and their assignable area were reported.

2/ Excludes U. S. Service Schools.

3/ Not reported.

Table 2.--Ratio of total assignable area to gross area in married-student apartment buildings[1] at higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region and State

Region and State	Area (in hundreds of sq.ft.)		Ratio of total assignable area to gross area (percent)
	Total assignable	Gross	
AGGREGATE UNITED STATES	167,568	193,181	86.7
CONTIGUOUS STATES[2]	167,510	193,122	86.7
NORTHEAST	13,237	15,361	86.2
Connecticut	151	168	89.9
Maine	0	0	-
Massachusetts	546	773	70.6
New Hampshire	484	536	90.3
New Jersey	3,304	3,913	84.4
New York	6,859	7,732	88.7
Pennsylvania	1,689	2,013	83.9
Rhode Island	0	0	-
Vermont	204	226	90.3
NORTH CENTRAL	61,758	71,165	86.8
Illinois	7,684	9,886	77.7
Indiana	8,790	11,069	79.4
Iowa	9,678	10,137	95.5
Kansas	3,951	4,539	87.0
Michigan	16,885	18,771	90.0
Minnesota	4,493	4,606	97.5
Missouri	2,665	3,212	83.0
Nebraska	1,284	1,621	79.2
North Dakota	2,477	2,497	99.2
Ohio	1,381	1,623	85.1
South Dakota	1,297	1,583	81.9
Wisconsin	1,173	1,621	72.4
SOUTH	62,564	73,293	85.4
Alabama	5,748	6,471	88.8
Arkansas	1,677	1,783	94.1
Delaware	0	0	-
Florida	3,145	3,658	86.0
Georgia	5,709	6,804	83.9
Kentucky	7,763	9,391	82.7
Louisiana	4,123	4,395	93.8
Maryland	581	872	66.6
Mississippi	4,208	4,373	96.2
North Carolina	3,486	4,164	83.7
Oklahoma	7,155	9,884	72.4
South Carolina	3,133	3,364	93.1
Tennessee	2,669	3,165	84.3
Texas	11,123	12,541	88.7
Virginia	1,759	2,079	84.6
West Virginia	285	349	81.7
District of Columbia	0	0	-
WEST	29,951	33,303	89.9
Arizona	853	1,068	79.9
California	4,979	5,842	85.2
Colorado	5,507	6,006	91.7
Idaho	892	1,035	86.2
Montana	1,627	2,186	74.4
Nevada	0	0	-
New Mexico	1,589	1,664	95.5
Oregon	3,740	3,920	95.4
Utah	4,884	5,528	88.4
Washington	4,926	4,941	99.7
Wyoming	956	1,113	85.9
U. S. SERVICE SCHOOLS	0	0	-
OUTLYING PARTS	58	59	98.3
Alaska	58	59	98.3
Canal Zone	(3/)	(3/)	-
Guam	(3/)	(3/)	-
Hawaii	0	0	-
Puerto Rico	0	0	-

---

[1] Excludes buildings containing any general, instructional, or research assignable area, or containing any residential assignable area other than for married-student apartments.

[2] Excludes U. S. Service Schools.

[3] Not reported.

Table 3.--Computation of gross area per married-student apartment unit in buildings occupied by higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by region and State

Region and State	Mean assignable area[1/] per apartment unit (sq.ft.)	Ratio[2/] of total assignable area to gross area (percent)	Computed mean gross area[3/] per apartment unit (sq.ft.)
AGGREGATE UNITED STATES	489.5	86.7	564.6
CONTIGUOUS STATES[4/]	489.5	86.7	564.6
NORTHEAST	462.0	86.2	536.0
Connecticut	572.7	89.9	637.0
Maine	429.4	(5/)	-
Massachusetts	323.7	70.6	458.5
New Hampshire	544.4	90.3	602.9
New Jersey	503.1	84.4	596.1
New York	521.2	88.7	587.6
Pennsylvania	295.3	83.9	352.0
Rhode Island	0	-	-
Vermont	869.6	90.3	963.0
NORTH CENTRAL	499.9	86.8	575.9
Illinois	548.1	77.7	705.4
Indiana	529.5	79.4	666.9
Iowa	463.9	95.5	485.8
Kansas	479.6	87.0	551.3
Michigan	512.5	90.0	569.4
Minnesota	544.1	97.5	558.1
Missouri	480.2	83.0	578.6
Nebraska	344.1	79.2	434.5
North Dakota	535.3	99.2	539.6
Ohio	524.1	85.1	615.9
South Dakota	360.9	81.9	440.7
Wisconsin	403.9	72.4	557.9
SOUTH	489.9	85.4	573.7
Alabama	607.3	88.8	683.9
Arkansas	404.0	94.1	429.3
Delaware	0	-	-
Florida	385.5	86.0	448.3
Georgia	544.3	83.9	648.7
Kentucky	529.5	82.7	640.3
Louisiana	553.4	93.8	590.0
Maryland	391.0	66.6	587.1
Mississippi	651.5	96.2	677.2
North Carolina	515.5	83.7	615.9
Oklahoma	363.7	72.4	502.3
South Carolina	687.7	93.1	738.7
Tennessee	456.5	84.3	541.5
Texas	450.5	88.7	507.9
Virginia	563.0	84.6	665.4
West Virginia	362.5	81.7	443.7
District of Columbia	596.5	(5/)	-
WEST	480.9	89.9	534.9
Arizona	376.3	79.9	471.0
California	451.9	85.2	530.4
Colorado	451.6	91.7	492.5
Idaho	414.1	86.2	480.4
Montana	497.6	74.4	668.8
Nevada	0	-	-
New Mexico	488.4	95.5	511.4
Oregon	559.5	95.4	586.5
Utah	478.7	88.4	541.5
Washington	552.9	99.7	554.6
Wyoming	438.5	85.9	510.5
U. S. SERVICE SCHOOLS	6[illegible]8.8	(5/)	-
OUTLYING PARTS	241.7	98.3	245.9
Alaska	241.7	98.3	245.9
Canal Zone	(6/)	-	-
Guam	(6/)	-	-
Hawaii	0	-	-
Puerto Rico	0	-	-

1/ From table 1.
2/ From table 2.
3/ Based upon mean assignable area per apartment unit and ratio of assignable area to gross area in married-student apartment buildings only.
4/ Excludes U. S. Service Schools.
5/ Not available due to existence of assignable area other than for married-student apartment units.
6/ Not reported.

List A.--College and University Married-Student Apartment Buildings and Houses[1/] Reported To Have Been Occupied for the First Time During the 1948-57 Calendar Decade: Aggregate United States

Note: Figure in parentheses included with name of building indicates number of buildings.

State and institution	Name of building	Year
Arkansas		
Arkansas Agricultural and Mechanical College	Student Duplex (Lakeside) (10)	1951
	Student Efficiency Apartments (Motel)	1948
Arkansas Polytechnic College	Turrentine Apartments Buildings A-E	1955
Henderson State Teachers College	Gerrett Hall	1955
Southern State College	Co-Vet Village Apartments	1955
California		
Loma Linda University, Los Angeles	Avon Court	1951
University of Southern California	Bacon Hall	1952
	Bruce Apartments	1952
	Exposition Housing	1948
Colorado		
Adams State College	Crestone Courts	1955
	Rio Grande Housing	1948
Fort Lewis Agricultural and Mechanical College	Apartment Units A, B, C, D and E (5)	1957
University of Colorado, Boulder	Student Apartments	1957
University of Denver	Frontier Hall	1950
Georgia		
Interdenominational Theological Seminary	Anna Halls	1953
Idaho		
University of Idaho, Moscow	Park Village Apartments	1957
Illinois		
Illinois Institute of Technology	Gunsaulus Hall	1949
Southern Illinois University, Carbondale	Chautauqua St. Housing	
	Single Family Units (10)	1955
	Barracks (35)	1950
University of Chicago	Prefabricated Housing #2	1948
Indiana		
Indiana University, Bloomington	Evermann Apartments	1957
	Hoosier Courts Row Housing (2)	1951
	Married Apartments II (4)	1955
	University Apartments (2)	1949
Purdue University	Student Apartment Dorms	1956
Iowa		
State College of Iowa	College Courts (12)	1956
Westmar College	Campus Courts (5)	1950

[1/] Includes only those buildings that provide married-student housing exclusively.

State and institution	Name of building	Year
Kentucky		
Asbury Theological Seminary	Duplex Apartments (4)	1952
Morehead State College	Riceville, Pre-fab Houses (20)	1957
Union College	College Courts	1954
University of Kentucky	Coopertown Apartments (7)	1957
	Shawneetown Apartments (6)	1957
Louisiana		
The University of Southwestern Louisiana	Olivier Hall	1956
Maryland		
Columbia Union College	7513 Carroll Avenue	1954
	7715 Flower Avenue	1954
	8615 Flower Avenue	1951
	7730 Greenwood Avenue	1948
	808 Kennebec Avenue	1952
Massachusetts		
Andover Newton Theological School	Kendall Hall	1954
University of Massachusetts	Hampshire House	1948
	Suffolk House	1948
Michigan		
Central Michigan University	Preston Court Apartments	1957
	Washington Court Apartments	1957
Eastern Michigan University	Apartment Houses, Pine Grove Terrace (6)	1956
Ferris Institute	Apartments (9)	1956
Michigan College of Mining and Technology, Houghton	D'Amour Residence	1955
Michigan State University of Agriculture and Applied Science	Cherry Lane Apartments (16)	1956
	University Village	1955
	Spartan Village	1957
Northern Michigan College	Married Student Apartments (2)	1957
The University of Michigan	Northwood Apartments - Group I, II (47)	1955
Western Michigan University	Married Student Apartments A-H (8)	1954
	Married Student Apartments J-Q (8)	1957
Minnesota		
Minnesota Bible College	Apartments	1949
Mississippi		
Clarke Memorial College	Student Houses (33)	1948
Mississippi Southern College	Village Apartment House	1948
William Carey College	Thomas Apartments	1957
Missouri		
Central Missouri State College	Veterans' Housing	1948
Eden Theological Seminary	Building "B"	1957
	Goetsch Building	1952
Rockhurst College	Veterans' Housing Apartments	1948
University of Missouri, Columbia	Married Student Apartments	1955
Montana		
Montana State College	Housing (16)	1955
	Housing (37)	1957
	Student Housing (25)	1956

State and institution	Name of building	Year
Nebraska		
Nebraska State Teachers College, Chadron	West Court	1956
Nebraska State Teachers College, Peru	Married Student Housing	1956
University of Nebraska	Colonial Terrace Apartments (11)	1955
	University Park Apartments	1957
New Jersey		
Drew University	Tipple Hall	1956
	Wendell Hall	1952
Shelton College	Cottage Lane	1953
New Mexico		
New Mexico Institute of Mining and Technology	Married Student Housing	1957
University of New Mexico	Apartments (5)	1950
New York		
Baptist Bible Seminary	Bethel Apartments	1948
	Crocker Avenue Apartments	1955
Biblical Seminary in New York	229 East 49th	1955
Cornell University	Pleasant Grove Apartments	1956
Rensselaer Polytechnic Institute, Troy	Rensselaerwyck Housing	1948
North Carolina		
Pfeiffer College	Student Apartments	1955
Piedmont Bible College, Inc.	Stevens Hall	1954
Southeastern Baptist Theological Seminary	Bostwick Hall	1951
Wake Forest College	Student Apartments	1956
North Dakota		
North Dakota State University	Bisen Court (2)	1956
Ohio		
Capital University	Married Seminarians Apartments	1957
Marietta College	Glendale Apartments (3)	1949
United Theological Seminary	New Dormitory	1957
Oklahoma		
Phillips University	Miscellaneous Housing (18)	1948
	Texas Houses (25)	1948
Pennsylvania		
Crozer Theological Seminary	Franklin House	1949
	Western House	1949
Messiah College	Hillcrest Apartments	1952
South Carolina		
Clemson Agricultural College	Tom Littlejohn Homes	1950
Newberry College	Apartments	1948
South Dakota		
Northern State Teachers College	Married Housing (26)	1948
Yankton College	New Married Student Apartments	1955

State and institution	Name of building	Year
Tennessee		
Carson-Newman College	Chiles and Foster Duplexes	1953
Madison College	Breckinridge Circle	1955
	Patterson Apartments	1954
Southern Missionary College	Apartment Buildings (3)	1951
	Apartment Buildings (4)	1949
Texas		
Agricultural and Mechanical College of Texas	551-609 College View Apartments	1948
Austin Presbyterian Theological Seminary	Student Apartments 101-3 30th	1957
	Student Apartments 2904-6 University	1952
Baylor University	Speight-Jenkins Dormitory	1956
East Texas Baptist College	Student Duplexes (10)	1952
East Texas State College	South Dormitories	1948
Southwestern Assemblies of God College	Married Couples Apartment	1948
Stephen F. Austin State College	Morgan House	1953
	Raguet Street Apartments	1955
	500 E. College Apartments	1955
	500 E. College Apartments - B	1949
	700 E. Starr Apartments	1956
Sul Ross State College	Brick Cottages (30)	1949
Wayland Baptist College	Student Duplex	1955
Utah		
Brigham Young University	Wyview Village (149)	1957
College of Southern Utah	College Duplex	1956
Virginia		
Ferrum Junior College	Married Student Apartments (7)	1956
Washington		
Walla Walla College	16 S. College Avenue	1950
Wisconsin		
Lawrence College, Appleton	Whiting Residence	1957
The Institute of Paper Chemistry	Married Student Dormitories (7)	1957
University of Wisconsin, Madison	Eagle Heights Apartment Project 1	1957
	Harvey St. Apartments	1956
	University Houses	1948
Wyoming		
University of Wyoming	Student Apartments (25)	1954

List B.--Married-Student Housing Planning Bibliography

Apartments and Dormitories. New York: F. W. Dodge Corporation, 1958. 232 p.

Blackburn, William E. Now a 'Motel' for Married Students. College and University Business, 19:6, 29-31, December 1955.

Bloomfield, Byron C. Married Student Housing. In College Housing, AIA File No. D3.3. Washington: American Institute of Architects, (reprint from Bulletin of the American Institute of Architects, July-August 1956. p. 29-34).

Bock, George Alvin. Study of Development of Permanent Housing Facilities for Married Students and Their Families, B. Arch. thesis. Charlottesville: University of Virginia, June 1955. 29 p.

Campus Housing, Contemporary Version--Housing for Single and Married Students, Purdue University. Architectural Record, 120:2, 196-200, August 1956.

College and University Married Student Apartment Buildings and Houses Reported To Have Been Constructed During the 1948-1957 Decade Washington: Division of Higher Education, Office of Education, U. S. Department of Health, Education, and Welfare, April 25, 1961. 5 p.

College and University Residence Facilities Constructed, 1950-58. American School and University, 31:165-194, 1959-1960.

Comments and Summary on Survey of Family Housing Facilities. In Proceedings, National Association of Physical Plant Administrators of Universities and Colleges. Madison, Wis.: The Association, May 1956. p. 21-23.

Donnelly, Ruth N. Planning for Married Students. College and University Business, 21:5, 33-36, November 1956.

________. We Have Accepted Them, So Let's Improve Our Planning for Married Students. College and University Business, 21:5, 33-36, November 1956.

Durley, W. Mark. Housing Graduate Students. College and University Business, 25:1, 28-29, July 1958.

Dwelling Types and Unit Sizes. In Time-Saver Standards, 2d ed. New York: F. W. Dodge Corporation, 1950. p. 208-223.

Federation of Mutual Fire Insurance Companies. Is Your Student Housing Fire Safe? 2d ed. Chicago: The Federation, 1960. 50 p.

Foster, Emery. Married Student and Faculty Housing. In Proceedings, 27th Annual Meeting, Southern Association of College and University Business Officers. New Orleans, La.: The Association, March 31-April 2, 1955. p. 69-73.

Frank, Lawrence K. Housing for Married Students. Journal of Home Economics, 49:5, 347-350, May 1957.

Houghland, Kenneth R. The Answer to Our Married Student Housing Problem. College and University Business, 32:1, 41-44, January 1962.

How a Western University Is Providing for Its Married Students. College and University Business, 27:2, 46-47, August 1959.

Illuminating Engineering Society. Residential Lighting. In IES Lighting Handbook, 3d ed. New York: The Society, 1959, Sec. 15. p. 15-1 to 15-33.

Jones, Robert M. Married Student Housing at Arkansas Combines Beauty with Comfort. College and University Business, 28:3, 25-29, March 1960.

Kamphoefner, Henry L. Decent Housing for Married Students. College and University Business, 2:3, 11-13, March 1947.

Kretschmer, Vernon. Family Housing Facilities. College and University Business, 22:5, 36-38, May 1957.

Long, James D., and J. B. Black, Jr. Needed Expansion of Facilities for Higher Education--1958-1970: How Much Will It Cost? Washington: American Council on Education, 1958. p. 14-15.

Lyons, William H. Apartments for Illinois Married Students and Faculty. College and University Business, 7:6, 15-16, December 1949.

Married Student Dormitories for Yale Planned Like an Italian Hill Town. Architectural Record, 129:3, 142-146, March 1961.

Nelson, Alice. Residence Hall Construction at Indiana University from 1955-1963. Bloomington: Indiana University, n.d. 30 p.

Parklike Living for Married Students. *Architectural Forum*, 115:1, 110-111, July 1961.

Parsons, David H., Jr. Housing for Married Students. *College and University Business*, 24:1, 32-33, January 1958.

Payne, Nell Irvin. Solving the Housing Problem at Emory University. *American School and University*, 29:321-326, 1957-1958.

Riker, Harold C., and Lopez, Frank G. Housing Married Students. In *College Students Live Here*. New York: Educational Facilities Laboratories, Inc., 1961. p. 23-28, 31-32, 52, 97.

Riker, Harold C. Planning Functional College Housing. New York: Bureau of Publications, Teachers College, Columbia University, 1956. 240 p.

Sharkan, W. W. Housing for Married Students. *Journal of the National Association of Deans of Women*, 17:2, 84-87, January 1954.

Sharkan, William M. It's High Time for Permanent Housing for Married Students. *College and University Business*, 17:2, 37-39, August 1954.

Shiel, Francis S. University of Michigan's Married Student Housing Project. *American School and University*, 30:331-336, 1958-1959.

Smith, John R. Low Cost Housing for Married Students at Ferris Institute. *American School and University*, 29:327-330, 1957-1958.

Smith, Marjorie C., Emerging Concepts and Developing Practices as Related to Campus Residence Halls. In *New Frontiers in Guidance-Personnel Work*. Syracuse, N.Y.: Syracuse University Press, 1959. p. 95-101.

Stabler, L. C., Jr. Questionnaire Aids in Planning Housing for Married Students. *College and University Business*, 26:1, 42, January 1959.

Stewart, R. B. Married or Single, Purdue Will House Them. *College and University Business*, 22:1, 37-41, January 1957.

Stone, Edward D. University Housing. In *Apartments and Dormitories*. New York: F. W. Dodge Corporation, 1958. p. 192-193.

Survey: Married Student Housing. Manhattan, Kans.: Research Committee, Association of College and University Housing Officers, July 1957. 7 p.

Tappe, Bruce V. Housing for Married Students. *College and University Business*, 18:5, 34-37, May 1955.

Turrentine, Florence. Henderson College's New Apartments for Married Students. *American School and University*, 28:419-422, 1956-1957.

Warnecke, John Carl. 'Villages' for Seminarians. *College and University Business*, 23:3, 41, September 1957.

Williams and Burrows, Inc. How a Western University Is Providing for Its Married Students. *College and University Business*, 27:1, 46-47, July 1959.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

July 1962

OE-51004-9

RESIDENCE HALL PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

Attn: Business Officer

Columbia College
207 S. Wabash Ave.
Chicago 4, Ill.
E-24-H

Residence halls for single students in both public and private higher education institutions in the United States had sleeping-study room accommodations for approximately 352,000 men and 310,000 women as of December 31, 1957. Private institutions housed approximately the same number of women as did public institutions; however, public institutions housed about 9 percent more men than did private institutions. These data are revealed in returns from the "Inventory of College and University Physical Facilities, December 31, 1957"[1]. The responding institutions represented 85 percent of the higher education institutions, or 95.7 percent of the fall 1957 enrollment in higher education in the United States.

Tables 1 and 3 present for men and women, respectively, the total assignable area of sleeping-study rooms, the student design capacity, and the mean area per unit of design capacity, by State and region, for both public and private institutions. Tables 2 and 4 present for men and women, respectively, regional per-student figures for assignable areas by means, by medians, and by interquartile ranges. The assignable area of a sleeping-study room includes any auxiliary area devoted exclusively to the functions of the room and is measured from the inside walls at floor level. The per-student assignable area of a sleeping-study room is therefore the assignable area devoted to all accommodations necessary for one student.

Comparisons from tables 2 and 4 show considerable variations in mean assignable sleeping-study area between male and female students and between public and private institutions. The mean assignable area for male students averaged 96.2 square feet in public institutions and 111.3 square feet in private institutions. The mean assignable area for female students averaged 103.5 square feet in public institutions and 118.4 in private institutions. Regional variations in mean assignable area were noticeable for women in both public and private institutions, from 98.7 square feet (West) to 110.9 square feet (Northeast) in the former, and from 108.6 (North Central) to 127.7 (Northeast) in the latter. For men's dormitories, mean assignable area in private institutions ranged from 103.1 square feet (North Central) to 118.8 square feet (Northeast); however, in public institutions, the range was only a matter of 3.3 square feet, from 95.0 (West) to 98.3 (North Central).

List A shows, by State, the names and locations of buildings housing single men and women which were reported to have been occupied for the first time during 1956-57. List B is a bibliography for planning residence halls for single students.

---

[1] Part 3 of a 5-part survey by the Office of Education, *College and University Facilities Survey.*

Table 1.--Design capacity and assignable area of sleeping-study rooms in residence halls[1] for single men at higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by control, region, and State

Region and State	PUBLIC			PRIVATE		
	Design capacity (no. of students)	Assignable area		Design capacity (no. of students)	Assignable area	
		Total (in hundreds of sq.ft.)	Mean per student (sq.ft.)		Total (in hundreds of sq.ft.)	Mean per student (sq.ft.)
AGGREGATE UNITED STATES.....	184,158	178,085	96.7	168,548	187,656	111.3
CONTIGUOUS STATES[2].........	183,117	176,608	96.4	168,528	187,633	111.3
NORTHEAST..........	16,915	16,454	97.3	58,264	69,203	118.8
Connecticut.................	159	121	76.1	1,510	1,824	120.8
Maine.......................	1,661	1,442	86.8	1,292	1,528	118.3
Massachusetts...............	1,997	2,129	106.6	7,926	9,047	114.4
New Hampshire...............	1,304	1,278	98.0	2,156	2,861	132.7
New Jersey..................	2,060	1,866	90.6	5,094	7,055	138.5
New York....................	2,752	2,969	107.9	18,014	21,641	120.1
Pennsylvania................	5,929	5,694	96.0	17,343	20,028	115.5
Rhode Island................	488	453	92.8	3,041	3,260	107.2
Vermont.....................	565	502	88.8	1,888	1,959	103.8
NORTH CENTRAL........	48,976	48,152	98.3	45,146	46,656	103.1
Illinois....................	4,599	4,304	93.6	7,866	8,345	106.1
Indiana.....................	7,220	6,195	85.8	7,650	8,010	104.7
Iowa........................	4,052	4,260	105.1	4,929	4,923	99.9
Kansas......................	690	695	100.7	1,734	1,899	109.5
Michigan....................	12,536	12,856	102.6	2,783	2,766	99.4
Minnesota...................	2,487	3,790	152.4	4,390	4,736	107.9
Missouri....................	2,100	1,994	95.0	4,100	4,636	113.1
Nebraska....................	2,016	1,985	98.5	1,477	1,526	103.3
North Dakota................	2,152	1,877	87.2	289	310	107.3
Ohio........................	7,695	6,876	89.4	5,872	5,696	97.0
South Dakota................	1,483	1,572	106.0	656	566	86.3
Wisconsin...................	1,946	1,748	89.8	3,400	3,243	95.4
SOUTH............	94,020	89,965	95.7	52,029	56,915	109.4
Alabama.....................	5,947	5,304	89.2	2,723	2,381	87.4
Arkansas....................	3,622	3,818	105.4	1,424	2,392	168.0
Delaware....................	584	598	102.4	229	107	46.7
Florida.....................	4,532	4,169	92.0	2,715	2,909	107.1
Georgia.....................	6,851	6,031	88.0	3,506	3,400	97.0
Kentucky....................	2,971	2,863	96.4	1,814	2,032	112.0
Louisiana...................	8,258	7,370	89.2	1,609	1,910	118.7
Maryland....................	3,051	2,474	81.1	2,878	3,577	124.3
Mississippi.................	6,038	5,652	93.6	1,267	943	74.4
North Carolina..............	8,401	8,312	98.9	8,770	9,255	105.5
Oklahoma....................	7,135	7,852	110.0	1,467	1,387	94.5
South Carolina..............	6,544	8,137	124.3	3,081	3,383	109.8
Tennessee...................	4,005	3,849	96.1	5,056	4,969	98.4
Texas.......................	15,386	12,975	84.3	9,729	11,434	117.5
Virginia....................	8,087	7,898	97.7	2,873	3,158	109.9
West Virginia...............	1,977	1,738	87.9	714	575	80.5
District of Columbia........	631	925	146.6	2,174	3,103	142.7
WEST............	23,206	22,037	95.0	13,089	14,859	113.5
Arizona.....................	2,609	2,610	100.0	177	257	145.2
California..................	1,606	1,511	94.1	7,147	8,641	120.9
Colorado....................	3,547	3,398	95.8	866	994	114.8
Idaho.......................	1,668	1,696	101.7	249	201	80.7
Montana.....................	2,007	2,044	101.8	361	384	106.4
Nevada......................	136	121	89.0	-	-	-
New Mexico..................	2,811	2,955	105.1	230	314	136.5
Oregon......................	3,183	2,752	86.5	1,511	1,665	110.2
Utah........................	977	643	65.8	466	396	85.0
Washington..................	3,789	3,574	94.3	2,082	2,007	96.4
Wyoming.....................	873	733	84.0	-	-	-
U. S. SERVICE SCHOOLS....	581	991	170.6	-	-	-
OUTLYING PARTS.......	460	486	105.7	20	23	115.0
Alaska......................	264	266	100.8	-	-	-
Canal Zone..................	(3/)	(3/)	-	-	-	-
Guam........................	(3/)	(3/)	-	-	-	-
Hawaii......................	80	73	91.3	20	23	115.0
Puerto Rico.................	116	147	126.7	(3/)	(3/)	-

---

[1] Includes only those residence halls for which both capacity and assignable area were reported.

[2] Excludes U. S. Service Schools.

[3] Not reported.

Table 2.--Assignable area per sleeping-study room accommodation in residence halls[1] for single men at higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, based upon design capacity and State means, by control and region: Contiguous States

(Areas are reported in square feet)

Region[2]	PUBLIC			PRIVATE		
	Mean	Median	Interquartile range	Mean	Median	Interquartile range
Contiguous States.....	96.2	94.8	89.9 - 102.5	111.3	112.1	104.6 - 118.7
Northeast.......	97.3	95.9	91.5 - 103.6	118.8	116.8	115.1 - 120.0
North Central.....	98.3	95.3	88.4 - 101.8	103.1	104.6	98.9 - 106.6
South.........	95.7	93.1	88.2 - 99.3	109.4	108.2	100.3 - 116.4
West.........	95.0	95.9	92.6 - 101.2	113.5	115.8	108.6 - 124.4

[1] Includes only those residence halls for which both capacity and assignable area were reported.

[2] See table 1 for inclusions.

Table 3.--Design capacity and assignable area of sleeping-study rooms in residence halls[1] for single women at higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by control, region, and State

Region and State	PUBLIC			PRIVATE		
	Design capacity (no. of students)	Assignable area		Design capacity (no. of students)	Assignable area	
		Total (in hundreds of sq.ft.)	Mean per student (sq.ft.)		Total (in hundreds of sq.ft.)	Mean per student (sq.ft.)
AGGREGATE UNITED STATES	154,847	160,203	103.5	155,739	184,298	118.6
CONTIGUOUS STATES[2]	154,321	159,711	103.5	155,613	184,190	118.4
NORTHEAST	20,007	22,197	110.9	43,454	55,505	127.7
Connecticut	433	521	120.3	1,462	1,887	129.1
Maine	1,014	1,140	112.4	1,224	1,294	105.7
Massachusetts	2,145	2,021	94.2	10,935	14,239	130.2
New Hampshire	1,326	1,613	121.6	857	1,065	124.3
New Jersey	2,157	2,141	99.3	1,529	1,697	111.0
New York	5,357	5,650	105.5	10,670	14,538	136.3
Pennsylvania	6,353	7,924	124.7	14,110	17,379	123.2
Rhode Island	230	213	92.6	1,432	1,673	116.8
Vermont	992	974	98.2	1,235	1,733	140.3
NORTH CENTRAL	46,184	45,785	99.1	44,501	48,313	108.6
Illinois	2,851	2,802	98.3	7,652	8,513	111.3
Indiana	6,088	5,547	91.1	4,626	5,596	121.0
Iowa	3,467	3,724	107.4	5,259	4,958	94.3
Kansas	2,083	2,285	109.7	2,667	2,512	94.2
Michigan	10,509	10,243	97.5	1,910	2,033	106.4
Minnesota	2,684	3,508	130.7	4,115	5,017	121.9
Missouri	2,108	2,327	110.4	5,980	7,155	119.6
Nebraska	1,870	1,946	104.1	1,877	2,012	107.2
North Dakota	1,320	1,255	95.1	210	192	91.4
Ohio	9,459	8,761	92.6	5,954	6,253	105.0
South Dakota	1,269	1,261	99.4	1,038	990	95.4
Wisconsin	2,476	2,126	85.9	3,213	3,082	95.9
SOUTH	68,799	72,658	105.6	52,095	62,294	119.6
Alabama	5,694	6,030	105.9	2,193	2,279	103.9
Arkansas	2,427	2,069	85.2	1,081	1,177	108.9
Delaware	744	707	95.0	83	43	51.8
Florida	3,646	4,759	130.5	3,255	3,279	100.7
Georgia	4,180	4,016	96.1	3,735	4,247	113.7
Kentucky	3,218	3,042	94.5	1,786	2,000	112.0
Louisiana	5,191	4,956	95.5	1,265	1,571	124.2
Maryland	2,317	2,410	104.0	2,553	2,848	111.6
Mississippi	4,076	4,280	105.0	1,818	1,875	103.1
North Carolina	7,065	7,942	112.4	6,605	7,311	110.7
Oklahoma	5,078	5,603	110.3	1,246	1,320	105.9
South Carolina	2,444	2,712	111.0	4,304	4,209	97.8
Tennessee	3,448	4,131	119.8	5,341	5,972	111.8
Texas	11,513	11,345	98.5	9,292	14,778	159.0
Virginia	5,163	6,176	119.6	5,144	6,010	116.8
West Virginia	2,018	1,828	90.6	608	771	126.8
District of Columbia	577	652	112.0	1,786	2,604	145.8
WEST	19,331	19,071	98.7	15,563	18,078	116.2
Arizona	2,721	3,004	110.4	39	22	56.4
California	2,151	1,969	91.5	7,505	10,017	133.5
Colorado	4,477	4,424	98.8	1,379	1,765	128.0
Idaho	789	842	106.7	335	286	85.4
Montana	1,170	1,093	93.4	125	118	94.4
Nevada	188	190	101.1	-	-	-
New Mexico	1,838	1,865	101.5	-	-	-
Oregon	2,344	2,143	91.4	1,515	1,860	122.8
Utah	950	713	75.1	2,031	1,532	75.4
Washington	2,361	2,511	106.4	2,634	2,478	94.1
Wyoming	342	317	92.7	-	-	-
OUTLYING PARTS	526	492	93.5	126	108	85.7
Alaska	100	131	131.0	-	-	-
Canal Zone	([3])	([3])	-	-	-	-
Guam	([3])	([3])	-	-	-	-
Hawaii	173	141	81.5	([3])	([3])	-
Puerto Rico	253	220	87.0	126	108	85.7

[1] Includes only those residence halls for which both capacity and assignable area were reported.

[2] Excludes U. S. Service Schools.

[3] Not reported.

Table 4.--Assignable area per sleeping-study room accommodation in residence halls[1] for single women at higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, based upon design capacity and State means, by control and region: Contiguous States

(Areas are reported in square feet)

Region[2]	PUBLIC			PRIVATE		
	Mean	Median	Interquartile range	Mean	Median	Interquartile range
Contiguous States.....	103.5	99.1	95.4 - 110.4	118.4	118.0	106.8 - 130.2
Northeast.......	110.9	107.9	101.5 - 123.5	127.7	130.0	121.7 - 133.7
North Central.....	99.1	96.9	92.5 - 103.2	108.6	109.3	98.6 - 118.4
South.........	105.6	105.2	97.1 - 112.1	119.6	111.8	107.7 - 120.4
West.........	98.7	98.5	91.9 - 102.8	116.2	129.7	92.3 - 132.1

[1] Includes only those residence halls for which both capacity and assignable area were reported.

[2] See table 3 for inclusions.

List A.--College and University Residence Halls for Single Men and Single Women Reported To Have Been Occupied for the First Time during 1956-57

Note: An asterisk (*) before name of building indicates residence hall for women; a dagger (†), a coeducational dormitory.

State and institution	Name of building	Year
Alabama		
Alabama Agricultural and Mechanical College	Gymnasium Annex	1956
	*P. E. Thigpen Hall	1956
Alabama College	Napier Hall	1957
Auburn University	Noble Hall	1956
Birmingham-Southern College	Mens Dormitory	1956
	*Victor H. Hanson Residence for Women	1956
Howard College	Mens Dormitory	1957
	*Womens Dormitory	1957
Jacksonville State College	Freshman Hall	1956
Troy State College	Pace Hall	1957
University of Alabama, University	Mallett Hall	1957
	Palmer Hall	1956
	Sommerville Hall	1956
Alaska		
University of Alaska	McIntosh Hall	1957
	*Wickersham Hall	1957
Arizona		
Arizona State University	Best Hall A & B	1956
	*McClintock Hall - B	1956
	*Palo Verde Hall	1957
	Sahuaro Hall	1956
	*Wilson Hall	1956
University of Arizona	Apache-Santa Cruz Hall	1957
	*Manzanita-Mohave Hall	1957
Arkansas		
Arkansas Agricultural and Mechanical College	Jeter Hall	1956
Harding College	Graduate Dorm	1956
Hendrix College	East Hall	1956
Ouachita Baptist College	O. C. Bailey Hall	1956
University of Arkansas, Fayetteville	Wilson Sharp House	1956
California		
Azusa College	Cliff House	1956
California Western University	Mens Residence Hall	1957
	*Womens Residence Hall	1957
Claremont University College	Residence Halls	1957
Reedley College	*Girls Dorm	1956
Stanford University	*Florence Moore Hall	1956
University of California, Davis Campus	*Struve Hall	1956
University of California, Santa Barbara Campus	*Santa Rosa Hall	1956
University of Redlands	*Anderson Hall	1956
University of Santa Clara	McLaughlin Hall	1956
University of Southern California	Stonier Hall	1957
Colorado		
Colorado School of Mines	New Dormitory	1956
Colorado State College	*Wiebking Hall	1957
	*Wilson Hall	1957
Colorado State University	Aylesworth Hall	1956
	Ellis Hall	1956
Colorado Woman's College	*Curtis Hall	1956
Fort Lewis Agricultural and Mechanical College	Mens Dormitory A	1957
	Mens Dormitory B	1957
	*Womens Dormitory	1957
Regis College	O'Connell Hall	1957
University of Colorado	*Hallett Dorm	1956
Western State College of Colorado	*Building "A"	1957
	Building "B"	1957
	*Building "C"	1957
Connecticut		
Central Connecticut State College	*Clarence Carroll Hall	1957
	Seth North Hall	1957
Fairfield University	Gonzaga Hall	1957
University of Bridgeport	*Cooper and Chaffee Hall	1957
	Haven Hall	1957
Delaware		
Delaware State College	Conwell Hall	1956

State and institution	Name of building	Year
Delaware--con.		
University of Delaware	*22 Amstel Avenue-Bonham Property	1956
	*Kent Dormitory	1956
District of Columbia		
The American University	Hughes Hall	1956
	McDowell Hall	1956
George Washington University	Adams Hall	1957
	*Madison Hall	1957
Florida		
Bethune-Cookman College	*Meig's Hall	1957
Stetson University	*North Hall	1957
University of Miami	Don Carlos Hall	1956
Webber College	*Grace K. Babson Dormitory	1957
Georgia		
Agnes Scott College	*Walters Hall	1956
Emory-at-Oxford	Dickey Hall	1956
Oglethorpe University	Goodman Hall	1956
Tift College	*Monroe Hall	1957
University of Georgia	Law-Grad. Hall	1957
	*Mary Lyndon Hall	1957
Young Harris College	*Appleby Hall Annex	1956
Hawaii		
University of Hawaii	Johnson Hall	1957
Idaho		
Idaho State College	Dyer, Nichols, Owen-Redfield Halls	1957
	East Hall	1956
University of Idaho, Moscow	McConnell Hall	1957
Illinois		
Augustana College	*Westerlin Hall	1957
Bradley University	*Lovelace Hall	1956
Illinois College	*Ellis Hall	1957
Lincoln College	Olin-Sang Hall	1957
MacMurray College	Blackstock House	1957
North Central College	Geiger Hall	1957
	*Kroehler Hall North	1956
North Park College and Theological Seminary	J. Fredrick Burgh Hall	1956
Northwestern University	Bobb Hall	1956
	McCulloch Hall	1956
Southern Illinois University, Carbondale	Mens Residence Halls, Thompson Point (6)	1956
	*New Womens Residence Halls-Unit A	1957
University of Chicago	Bennett Hall	1957
Western Illinois University	Mens New Dorm	1957
Indiana		
Ball State Teachers College	Wagoner Hall	1957
	*Woodworth Halls	1956
Butler University	*Womens Residence Hall	1956
Earlham College	Barrett Hall	1955
	*Earlham Hall	1957
Goshen College	*High Park Hall	1956
Indiana University, Bloomington	*Graduate Residence-Center "S"	1956
Manchester College	*East Hall	1956
Purdue University	Gable Courts (36)	1956
	Mens Residence Hall #1	1957
University of Notre Dame	Keenan Hall	1957
	Stanford Hall	1957
Iowa		
Buena Vista College	Mens Dormitory	1956
Drake University	Herriott Residence Hall	1957
Iowa State University of Science and Technology	Helser Hall	1956
Marycrest College	*Freshman Residence Hall	1956
Parsons College	Hiller House	1956
	Herrick House	1956
Wartburg College	*Vollmer Hall	1957
Kansas		
Fort Hays Kansas State College	*Agnew Hall	1957
Kansas State College of Pittsburg	Bowen Hall	1956
Marymount College	*Marian Hall	1956
Mount St. Scholastica College	*Kremmeter Hall	1957
St. Benedict's College	St. Augustine Hall	1957
Sterling College	*McCreery Hall	1957

State and institution	Name of building	Year
Kentucky		
Murray State College	*Woods Hall	1957
University of Kentucky	*Keeneland Hall	1956
Western Kentucky State College	*East Hall	1957
	South Hall	1957
Louisiana		
Centenary College	*John A. Hardin Hall Dormitory	1957
Grambling College	*Womens Dorm A (Freshman)	1956
	*Womens Dorm B (Sophomore)	1956
Louisiana College	Tudor Hall	1957
Louisiana Polytechnic Institute	*Dudley Hall	1956
Louisiana State University and Agricultural and Mechanical College	*Stadium Dormitory, South	1957
McNeese State College	*Alpha Hall	1956
	Mens Dormitory	1957
Northeast Louisiana State College	Boys Dorm	1956
	*Girls Dormitory	1957
Northwestern State College of Louisiana	Prudhomme Hall	1956
Southern University	*East Hall	1956
The University of Southwestern Louisiana	Caffery and Roy Halls	1956
Maine		
Bates College	*New Dormitory-Women	1957
Nasson College	*Marland Hall	1957
University of Maine	*Stodder Hall	1956
Maryland		
Hood College	*R. Paul Smith Hall	1957
St. Joseph College	*Rosary Residence Hall	1956
State Teachers College at Towson	*Prettyman Hall	1957
State Teachers College, Frostburg	Simpson Hall	1956
	Allen Hall	1956
Western Maryland College	Daniel MacLea Hall	1956
Massachusetts		
College of Our Lady of the Elms	*Senior Dormitory	1957
Harvard University, Cambridge	Greenough Hall	1957
	Hurlbut Hall	1957
	8 Prescott Street	1956
Newton College of the Sacred Heart	*Duchesne Hall, East and West	1957
Radcliffe College	*Graduate Center	1956
Regis College	*Maria Hall	1956
Simmons College	*Simmons Hall	1957
Michigan		
Adrian College	Feeman Hall	1957
Central Michigan University	Larzelere Hall	1957
	*Tate Hall	1956
Eastern Michigan University	*Bertha Buell Hall	1957
	*Estelle Downing Hall	1957
Ferris Institute	Carlisle Hall	1957
	*Helen Ferris Hall	1956
	Vandercook Hall	1957
Hope College	Kollen Hall	1956
Michigan State University of Agriculture and Applied Science	*Van Hoosen Hall	1957
University of Detroit	Reno Hall	1956
Western Michigan University	Ellsworth Hall	1956
	Henry Hall	1957
Minnesota		
Augsburg College and Theological Seminary	*Gerda Mortensen Hall	1956
Concordia College	*Park Region Hall	1956
Gustavus Adolphus College	Mens New Dormitory	1956
St. Olaf College	*Kittelsby Hall	1957
	Kildahl Hall	1957
Winona State College	Richards Hall	1957
Mississippi		
Belhaven College	New Dormitory	1956
Clarke Memorial College	*Girls Dormitory	1957
East Central Junior College	*Newsome Hall	1957
Mississippi State University	Smith Hall	1956
	Critz Hall	1956
Mississippi Vocational College	Boys Dormitory #2	1957
Okolona College	*Bratton Hall	1957
Missouri		
Central Missouri State College	*Franita Houts Residence Hall for Women	1957
Fontbonne College	*St. Agnes Hall	1956

State and institution	Name of building	Year
Missouri--con.		
Hannibal-LaGrange College	Crouch Hall	1956
Rockhurst College	Loyola-Xavier Halls	1957
St. Louis University	*Marguerite Hall	1956
University of Kansas City	‡Residence Hall	1956
Montana		
Montana State University	Duniway Hall (Craig Hall Extension #2)	1956
	*North Corbin Hall (Corbin-Brantly addition)	1956
Northern Montana College	Morgan Hall	1957
Nebraska		
Creighton University	Deglman Hall and Student Center	1957
Nebraska State Teachers College, Wayne	*Anderson Hall	1957
Nebraska Wesleyan University	*Pioneer Hall	1957
University of Nebraska	Burr Hall	1957
	*Fedde Hall	1957
New Hampshire		
Colby Junior College for Women	*Best Hall	1957
Keene Teachers College	Monadnock Hall	1956
New Jersey		
Fairleigh Dickinson University	*Bancroft Hall	1956
Stevens Institute of Technology	Hayden Hall	1956
New Mexico		
Eastern New Mexico University	Chaves Hall	1957
	*Harding Hall	1957
University of New Mexico	*Hokona Hall	1956
New York		
Adelphi College	*East Hall	1957
	West Hall	1957
Alfred University	Kruson Hall	1956
Clarkson College of Technology	Hill Dormitory	1957
Colgate University	Upper-Class Residence Hall	1957
Cornell University	Von Cramm Hall	1957
D'Youville College	*Marguerite Hall	1956
Elmira College	*Perry Hall	1957
Manhattan College	Jasper Hall	1957
Manhattanville College of the Sacred Heart	*Spellman Hall	1957
Marist College	Residence Hall	1957
New York University	Hayden Residence Hall	1956
	‡Medical Residence and Kitchen	1957
State University of New York Agricultural and Technical Institute at Alfred	*Dorm-Stage II	1957
State University of New York Agricultural and Technical Institute at Farmingdale	*Dorm-Stage II	1957
Syracuse University	*Flint Hall	1956
	*Hafts Hall, 795 Ostrom Ave.	1956
University of Buffalo	Residence Hall #5	1957
University of Rochester	Tiernan Hall	1957
Wagner College	Mens New Dormitory	1957
Yeshiva University	Rubin Residence Hall	1956
North Carolina		
Brevard College	Green Hall	1956
Campbell College	Kitchin Dormitory	1956
Davidson College	Little Dormitory	1956
Duke University	*Gilbert-Addoms Hall	1956
	Wannamaker Hall	1957
Elon College	Carolina Hall	1956
	*Virginia Hall	1956
Pfeiffer College	Plyler Dormitory	1956
Salem College	*Babcock Dormitory	1957
Wake Forest College	*Bostwick Dormitory	1956
	Davis Dormitory	1956
	Efird Hall	1956
	Huffman Hall	1956
	*Johnson Dormitory	1956
	Kitchin Dormitory	1956
	Poteat Dormitory	1956
North Dakota		
Jamestown College	*Kroeze Residence Hall	1957
North Dakota State University	Stockbridge Hall	1957
State Teachers College, Ellendale	Boys Dormitory #2	1956
State Teachers College, Mayville	Birkelo Hall	1957
State Teachers College, Valley City	Mens Dormitory	1957

State and institution	Name of building	Year
North Dakota--con.		
University of North Dakota	Bek Hall	1957
	*Fulton Hall	1956
Ohio		
Bowling Green State University	*Founders Quadrangle	1957
Case Institute of Technology	Pardee Dormitory	1956
College of Wooster	*Wagner Hall	1957
Findlay College	Myers Hall	1956
Kent State University	Johnson Hall	1956
	*Verder Hall	1956
Malone College	‡Residence Hall	1957
Marietta College	*Elsie Newton Hall	1957
Miami University	*Porter Hall	1956
	*Scott Hall	1956
Mount Union College	*McMaster Hall	1956
Muskingum College	*Kelley Hall	1956
Rio Grande College	*Davis Hall	1957
Wittenberg University	Firestine Hall	1956
	*South Hall	1956
Oklahoma		
Bethany-Nazarene College	Chapman Hall	1956
Northern Oklahoma Junior College	*Easterling Hall	1957
Oklahoma Baptist University	*Kerr Dormitory	1956
Oregon		
Lewis and Clark College	*Ruth Odell Hall	1957
Linfield College	Anderson Hall	1957
	Larsell Hall	1957
Oregon State University	*Cauthorn Hall	1957
	*Coed Cottage	1956
	Poling Hall	1957
University of Portland	*Villa Maria Hall	1957
Pennsylvania		
Beaver College	*Thomas Hall	1956
Cedar Crest College	*Reuben J. Butz Hall	1956
Dickinson College	*Mathews House	1957
Elizabethtown College	*Womens New Residence Hall	1956
Gannon College	Wehrle Hall	1957
Juniata College	Saylor House	1956
Lafayette College	Watson Hall Addition	1957
LaSalle College	Dormitories (2)	1956
Lebanon Valley College	*Mary C. Green Hall	1956
Lehigh University	Dormitory Plot #15	1956
	McClintic-Marshall House	1956
Lincoln University	McRary Hall	1956
Moore Institute of Art, Science, and Industry	*Residence Hall	1957
Muhlenberg College	Martin Luther Hall	1957
Philadelphia College of Pharmacy and Science	*Dormitory	1957
St. Francis College	*St. Agnes Hall	1957
	*St. Clare Hall	1957
St. Joseph's College	Drexel Hall	1957
Temple University	*Peabody Hall	1956
Thiel College	*East Hall	1957
	*Hunton Hall	1956
Ursinus College	*Beardwood Paisley and Stauffer Hall	1957
Villanova University	Sheehan Hall	1957
Wilson College	*Main Hall	1957
Rhode Island		
Brown University	West Quadrangle	1957
South Carolina		
Bob Jones University	*Georgia Creel Dormitory	1956
Columbia College	*New Dormitory	1957
Newberry College	Mens New Dormitory	1956
South Carolina State College	*Earle Hall	1957
South Dakota		
Dakota Wesleyan University	*Grace Bliss Dayton Hall	1957
Tennessee		
Austin Peay State College	McReynolds Hall	1957
Carson-Newman College	Alumni Memorial Dormitory	1956
	*Duncan Hall Dormitory	1956
Christian Brothers College	Maurelian Hall	1957
East Tennessee State College	*Yoakley Hall	1957
Memphis State University	*Mynders West Hall	1957
	North Hall	1956

State and institution	Name of building	Year
Tennessee--con.		
Tennessee Agricultural and Industrial State University	*Hankal Hall	1957
	Mens New Residence	1957
Tennessee Polytechnic Institute	*Girls Dormitories (2)	1956
Vanderbilt University	Kissam Quadrangle (6)	1957
Texas		
Austin College	Baker Hall	1957
	*Clyce Hall	1957
Baylor University	*Ruth Collins Dormitory	1957
McMurry College	*Hunt Memorial Dormitory	1957
North Texas State University	West Dormitory	1957
Ranger Junior College	W. P. Newell Hall	1956
Sacred Heart Dominican College	*Rosary Hall	1956
Sam Houston State Teachers College	Boys Cafeteria and Dorms	1957
	*J and K Apartments (2)	1957
	*Co-op Houses (8)	1957
Southern Methodist University	Boaz Hall	1956
	Shuttles Hall	1957
Southwest Texas State College	*Laurel Hall	1956
	*Retama Hall	1956
Stephen F. Austin State College	Mens Dormitory No. 2	1956
Texas Christian University	*Colby D. Hall	1957
	Milton Daniel Hall	1957
Texas College of Arts and Industries	*Eckhardt Hall	1956
Texas Lutheran College	*Clifton Hall	1956
	Kraushaar Hall	1957
Texas Technological College	*Weeks Hall	1957
Texas Wesleyan College	*Elizabeth Means Armstrong Hall	1957
	Mens Hall	1957
University of Corpus Christi	*Gazzie Warren Hall	1956
University of Dallas	Mens Residence Hall	1956
	*Womens Residence Hall	1956
University of Texas, Austin	*Blanton Dormitory	1956
	Moore Hall	1956
	*2506 Whitis (Womens Co-op)	1956
Wayland Baptist College	Brotherhood Hall	1957
West Texas State College	*Brown Hall	1957
	Terrill Hall	1957
Utah		
Brigham Young University	*Heritage Halls (8)	1956
Carbon College	Mens Dormitory	1957
Dixie Junior College	*Girls Dormitory	1956
University of Utah	Ballif Hall	1956
Utah State University of Agriculture and Applied Science	*Group Living Buildings (3)	1956
	*Mour-Greeves Raeder Halls	1956
Vermont		
University of Vermont and State Agricultural College	*Hamilton Hall	1956
	*Mason Hall	1956
	*Simpson Hall	1956
Vermont College	*Noble Hall	1957
Virginia		
Hampton Institute	*Davidson Hall	1956
Radford College	*Pocahontas Hall	1956
Washington		
Gonzaga University	Patrick Welch Hall	1957
University of Puget Sound	*Harrington Hall-3rd Unit	1957
	*Residence Hall-2nd Unit	1957
University of Washington	Mens Residence Hall #2	1957
West Virginia		
Bethany College	Campbell Hall	1956
West Virginia University	*Arnold Hall	1956
West Virginia Wesleyan College	McCuskey Hall	1957
Wisconsin		
Carroll College	Mens Dormitory	1957
Lakeland College	*Womens Dormitory	1957
Lawrence College	*Colman Hall	1956
Northwestern College	East Hall	1956
St. Norbert College	Sensenbrenner Hall	1956
University of Wisconsin, Madison	Dave Schreiner Hall	1956
	*Zoe Baylis	1956
Viterbo College	*Marian Hall	1957

List B.--Residence Hall Planning Bibliography

1. Alice Crocker Lloyd Residence Hall, University of Michigan. *Architectural Record*, 109:4, 112-117, April 1951.

2. American Institute of Architects. College Residence Hall. Washington: The Institute, 1949. 32 p.

3. Another Look at Trinity, the Lift-Slab University. *Architectural Forum*, 102:3, 130-137, March 1955.

4. Apartments and Dormitories. New York: F. W. Dodge Corporation, 1958. 232 p.

5. Architecture of Energy--New Dormitory, Vassar College. *Architectural Record*, 111:1, 127-134, January 1952.

6. At Old Wellesley, New Architecture. *Architectural Forum*, 98:6, 140-145, June 1953.

7. At Washington State, Dormitories. *Architectural Forum*, 98:6, 134-139, June 1953.

8. Automatic Watchmen for Cornell's Dorms--Fire Detection Equipment. *National Safety News*, 73:1, 90, 92, January 1956.

9. Axtell, William Bates. Standards for the Evaluation of College Residence Buildings. Syracuse, N.Y.: Syracuse University, 1949. 140 p. (unpublished doctoral dissertation--typed)

10. Bailey, Sam H. Cooperative Dormitories for Men at Oregon State College. *American School and University*, 28:407-412, 1956-1957.

11. Barnes, Ronald Emon. Residence Hall Housing in Selected Colleges and Universities in the United States. Boulder, Colo.: University of Colorado, 1958. 278 p. (unpublished doctoral dissertation--typed)

12. Baxter, A. W., Jr. "Brilliant Simplicity" of 800 Student Group, Berkeley. *College and University Business*, 23:3, 38-40, September 1957.

13. Beck, Martin L. Distinctive Dormitories at Rutgers University. *American School and University*, 28:413-418, 1956-1957.

14. Berg, Sigvald. Residence Hall at Montana State. *College and University Business*, 16:2, 40-42, February 1954.

15. Bloomfield, Byron C. College Housing, AIA File D3.3. Washington: American Institute of Architects, July-August 1956. 40 p. (reprint from *Bulletin of the American Institute of Architects*)

16. Blumenfeld, Irwin S. For Men in Residence, University of Washington Builds First of Several Dormitories. *College and University Business*, 19:2, 32-37, August 1955.

17. Bokelman, W. Robert, *and* John B. Rork. Residences for Single Students. In *Part 2*: *Planning for College and University Physical Plant Expansion, 1956-70*, Circular No. 603. Washington: Office of Education, 1960. p. 77-78.

18. Bovee, Norvall C., *and* Donald W. Kilbourne. Our Plan Is Showing, We Hope. *College and University Business*, 18:3, 36-39, March 1955.

19. Bowling, Dale O., *and* Gyo Obata. Group Living and Good Scholarship Inspire Housing Program Developed for University of Missouri. *College and University Business*, 23:3, 42-45, September 1957.

20. Brown, Paul E. New Men's Dormitory at the University of Detroit. *American School and University*, 29:303-308, 1957-1958.

21. Buntain, Willard J. Northwestern Residence Hall Built for Maintenance. *College and University Business*, 10:4, 32-35, April 1951.

22. Burnes, Lee. Wisconsin Gets Off to a Good Start in Cooperative Housing. *College and University Business*, 22:2, 42-45, February 1957.

23. Campus Housing: Contemporary Version. Housing for Single and Married Students, Purdue University. *Architectural Record*, 120:2, 196-200, August 1956.

24. Campus Housing in New and Varied Patterns--Northwood Apartment Group, University of Michigan. *Architectural Record*, 120:2, 190-195, August 1956.

25. Carlton, John. Wisconsin Girls Are Living High--Up to Eleven Stories High. *College and University Business*, 29:4, 36-37, October 1960.

26. Clark, Charles H. We Built Big, Yet We Avoided Bigness. *College and University Business*, 17:5, 33-36, November 1954.

27. Cloward, McRay. Small Colleges, Too, Can Build Adequate Residence Halls. *College and University Business*, 17:5, 37-39, November 1954.

28. Cochran, Charles M. Sorority Living in Residence Halls. *College and University Business*, 24:2, 30-32, February 1958.

29. College and University Residence Facilities Constructed 1950 Through 1958. *American School and University*, 31:165-194, 1959-1960.

30. College Buildings; Building Types Study. *Architectural Record*, 113:6, 128-139, June 1953.

31. College Buildings--Building Types Study. *Architectural Record*, 117:1, 125, January 1955.

32. College Dormitory Plan Elements. In *Time-Saver Standards*. New York: F. W. Dodge Corporation, 1950. p. 440-441.

33. College Housing. *School Life*, 37:111, April 1955.

34. Cooperative Dormitory, Vassar College. *Architectural Record*, 111:1, 127-134, January 1952.

35. Court for Coeds; University of Pennsylvania. *Architectural Forum*, 114:2, 120-121, February 1961.

36. Curtis, F. Philler. Two Residence Halls at Menlo College. *College and University Business*, 18:1, 28-30, January 1955.

37. Daly, Leo A. St. Louis University's New Hall for Women. *College and University Business*, 22:6, 35, June 1957.

38. Darlington, Robert P. *and* Lloyd Lovegren. Three Men's Residences at Washington State College. *American School and University*, 31:91-96, 1959-1960.

39. Design of Women's Dormitories and Cafeteria, University of Missouri, Columbia. *The School Executive*, 77:9, 60-61, May 1958.

40. Dormitories and Dining Hall for Rhode Island School of Design. *Progressive Architecture*, 40:1, 1952-1953, January 1959.

41. Dormitories. In "Air Force Buildings." *Architectural Record*, 111:1, 118-119, January 1952.

42. Dormitory Contains 2-Room Apartments--Kiskiminetas Springs School, Saltsburg, Pennsylvania. *Architectural Record*, 107:6, 112-113, June 1950.

43. Dormitory Planning: Two Examples. *Progressive Architecture*, 41:9, 156-159, September 1960.

44. Dormitory Rooms at Washington State University and Hampton Institute. *Architectural Forum*, 95:3, 174-179, September 1951.

45. Dunaway, M. Study of Certain Group Living Problems in Women's Residence Halls. *Journal of the National Association of Women Deans and Counselors*. Washington: The Association, March 1952. p. 134-138.

46. Durley, W. Mark. Housing Graduate Students. *College and University Business*, 25:1, 28-29, July 1958.

47. Economics Are Shaping the Dormitories. *Engineering News Record*, 165:58-60, August 1960.

48. Esplin, S. Students Appreciate Apartment Dormitory. *Journal of Home Economics*, 48:3, 204, March 1951.

49. Federation of Mutual Fire Insurance Companies. Is Your Student Housing Fire Safe? 2d ed. Chicago: The Federation, 1960. 50 p.

50. Fleisher, Elizabeth, *and* Gabriel Roth. They Live Alone and Like It--in This Residence Hall. *College and University Business*, 20:3, 33-35, March 1956.

51. For Practice in Housekeeping--Cooperative Dormitory Vassar College. *Architectural Record*, 107:6, 118-119, June 1950.

52. Frear Hall, University of Hawaii--Women's Residence Hall. Architectural Record, 115:4, 163-166, April 1954.

53. Furnishing the Dormitory--Knoll Associates Point Way. Architectural Forum, 95:6, 176-179, December 1951.

54. Gabbert, Dean I. For Small College Residence Hall Build-It-Yourself Idea Works. College and University Business, 20:5, 33-35, May 1956.

55. Gable, Tom S. A Public Health Point of View on Student Housing. College and University Business, 18:5, 21-23, May 1955.

56. ________. A Public Health Point of View on Student Housing, Part 2. College and University Business, 8:6, 45-47, June 1955.

57. Gaddis, John M. Comparative Costs of Two Residence Halls. College and University Business, 21:4, 33-35, October 1956.

58. Gibson, J. E. Residence for Women--An Experience in Living. American School and University, 31:97-100, 1959-1960.

59. Green, Alan C., and Harold D. Hauf. An Exploratory Analysis of High-Rise versus Low-Rise College Dormitories, Research Reference Document 101. Troy, N.Y.: School of Architecture, Rensselaer Polytechnic Institute, March 1961. 3 p. (Mimeographed)

60. Hammond, James W. Trends in Residence Hall Construction. In Proceedings: National Housing Conference. Urbana, Ill.: University of Illinois, July 28-30, 1949. p. 5-14.

61. Hare, Michael M., and E. S. Emerson. Planning, Budgeting and Financing Building Programs. College and University Business, 21:1, 19-25, July 1956.

62. Harvard Builds a Graduate Yard--New Dormitory *Center Retains Quadrangle Pattern.* Architectural Forum, 93:6, 61-71, December 1950.

63. Harvard's "Eighth House" Utilizes "Skip-Stop" Plan to Save Space. Architectural Record, 123:4, 354-360, April 1958.

64. Hayes, Harriet. Planning Residence Halls. New York: Bureau of Publications, Teachers College, Columbia University, 1932. 247 p.

65. Heidrich, R. H. Project Residence Hall. College and University Business, 32:6, 37-41, June 1962.

66. Helsabeck, Fred, and Margaret Dowdy. Hundley Hall, Modern Home for Women Students at Lynchburg College. American School and University, 29:309-314, 1957-1958.

67. Herrick, George. Living Quarters for Graduate Students. College and University Business, 21:3, 44-46, September 1956.

68. Hewitt, Carter E. Convertible Model--For Men or Women. College and University Business, 18:3, 40-42, March 1955.

69. ________. This Low-Cost Hall Built for Rural College Men. College and University Business, 27:2, 44-45, August 1959.

70. How, Stan. Residence Hall and Student Center. College and University Business, 27:1, 36-38, July 1959.

71. Hunter, James M. Green Hall, a Dormitory Project for 400 Women. American School and University, 29: 315-320, 1957-1958.

72. Hutchinson, George. We Corrected Our Design Mistakes Before We Made Them. College and University Business, 30:3, 46-49, March 1961.

73. Illuminating Engineering Society. Residential Lighting. In IES Lighting Handbook, 3d ed. New York: The Society, 1959. Sec. 15. p. 15-33.

74. Jaffurs, Marian. Facilities for 243 in This Men's Residence Hall. College and University Business, 17:1, 41-43, July 1954.

75. James, H. W. Safety in College Dormitories. Safety Education, 30:5, 1-3, 39, January 1951.

76. Johnson, C. T. Importance of Dormitories in Development of Physical Plant and to the Educational Program of the Modern University. Transactions and Proceedings. Washington: National Association of State Universities, 1952. p. 76-90.

77. Jones, J. Lee. University of Chicago's Residential Quadrangle for Women. American School and University, 30:327-330, 1958-1959.

78. Junior College Dorms. Overview, 2:2, 66, February 1961.

79. Keene, Philip E. Hillside Terrain Dictates Shape of This Residence Hall for 400 Women. College and University Business, 11:6, 36-39, December 1951.

80. Kelley and Gruzen. Rising High Above the River. College and University Business, 23:3, 46-47, September 1957.

81. Kempf, Fred W. You Are Protecting Lives. College and University Business, 25:2, 37-39, August 1958.

82. Kessler, Melvin E. Skyscraper Residence. College and University Business, 31:6, 39-41, December 1961.

83. Kiendl, Arthur H., Jr. For a Residence Hall System, It's a Bold Idea, but--. College and University Business, 22:4, 36-37, April 1957.

84. Kilbourn, Donald W. How Sweet Is the Suite Plan? College and University Business, 25:4, 32-33, October 1958.

85. Kirk, Harlan S. Residence Hall Serves Sororities. College and University Business, 23:5, 38-41, November 1957.

86. Klager, Benjamin. New Dormitory for Michigan State Normal College. American School and University, 27:347-350, 1955-1956.

87. Kohl, Deana. Women's Residence Center on Hilltop in Syracuse. College and University Business, 27:4, 40-44, October 1959.

88. Landscaped Court for Coeds. College and University Business, 30:6, 63-65, June 1961.

89. Lavisky, Saul. Dormitory-Barracks. College and University Business, 19:5, 38-39, November 1955.

90. Lewis, T. Leonard. A Dormitory and Library for Gordon College's New Campus. American School and University, 29:335-338, 1957-1958.

91. Little, Robert M. Residence Hall Is New Campus Landmark at the University of Miami. College and University Business, 26:5, 42-45, May 1959.

92. Long, James D., and J. B. Black, Jr. Needed Expansion of Facilities for Higher Education--1958-1970: How Much Will It Cost? Washington: American Council on Education, 1958. p. 14-15.

93. Low Cost College Dorms Clad in Aluminum Panels. Architectural Record, 118:4, 265, October 1955.

94. Madonna Hall. Catholic School Journal, 60:2, 73-75, February 1960.

95. McCann, R. V. St. John's Erects a Low-Cost Residence Hall. College and University Business, 10:1, 35-37, January 1951.

96. McCollum, Edith. Housing Standards. In Proceedings: National Housing Conference. Urbana, Ill.: University of Illinois, July 28-30, 1949. p. 26-32.

97. Men's Dormitory, University of Chicago. Architectural Record, 128:5, 138-139, November 1960.

98. Men's Dormitory, University of Washington. Architectural Record, 117:1, 147-150, January 1955.

99. Meranus, Leonard S. Low Cost Residence Hall. College and University Business, 11:2, 38, August 1951.

100. Mercer, Max G. New Residence Hall for Old. College and University Business, 17:4, 38-42, October 1954.

101. Mitchell, Marjorie. Suite Plan Affords Easy Transition from Family to College Life. College and University Business, 9:1, 34-35, July 1950.

102. Moor, Helen S. Cooperative Living: One Answer to the Housing Problem. Journal of the National Association of Women Deans and Counselors, 22:1, 43-45, October 1958.

103. Morrill, Paul D. Check List for College Dorms. Omaha, Neb.: Workshop in College Business Management, The University of Omaha, n.d. 4 p. (Mimeographed)

104. Morris, John. To Prevent Fires in Residence Halls. College and University Business, 23:1, 37-38, July 1957.

105. Mueller, Otto E. Some Questions and Answers Dealing with Housing and Food Service Operations in Colleges and Universities. Manhattan, Kans.: Association of University and College Housing Officers, Kansas State University, 1955. 33 p.

106. Mylchreest, William B. Connecticut Builds in Precast Slab. College and University Business, 9:2, 39, August 1950.

107. Naef, R. W. This Suite Plan Shows Originality. College and University Business, 27:2, 36-38, August 1959.

108. National Safety Council. Instruction Guide for National Standard Student Residence Fire Safety Check List. Chicago: The Council, 1959. 2 p.

109. _________. National Standard Student Residence Fire Safety Check List. Chicago: The Council, 1959. 4 p.

110. Nedderson, Richard H. Desirable Standards in Residence Hall Construction. College and University Business, 11:6, 32-35, December 1951.

111. Nelson, Alice. Coed Residence Halls. College and University Business, 28:1, 38-41, January 1960.

112. _________. Residence Hall Construction at Indiana University from 1955-1963. Bloomington: Indiana University, n.d. 30 p.

113. New Buildings for Men at Indiana University. American School and University, 22:171-174, 1950-1951.

114. New Dormitories at Clemson College. Architectural Record, 118:2, 1950-1956, August 1955.

115. The New Dormitories Introduce Modern Architecture at Smith. Architectural Record, 124:4, 352, October 1958.

116. New Dormitories Located to Redefine Campus Space; Saint Paul's School, Concord, N.H.; Sloping Lawn and Retaining Wall Enclose Dormitory; Wayne State University. Architectural Record, 130:4, 128-131, October 1961.

117. New Ivory Towers for Student Living. Institutions Magazine, 50:4, 108-109, April 1962.

118. Old Virginia Campus Turns to Modern Design: Dormitory at Hollins College. Architectural Record, 118: 4, 374, October 1955.

119. Payne, Nell Irvin. Solving the Housing Problem at Emory University. American School and University, 29:321-326, 1957-1958.

120. Peake, Charles H. Groups of Eight Are Basis of Knox College House Plan. College and University Business, 12:2, 38-39, February 1952.

121. Pennington Hall to Honor Former President. In George Fox College Is Growing. Newburg, Oreg.: Office of Development, George Fox College, 1961. p. 8.

122. Peterson, Carl M. F. Factors Affecting Costs of University Building Construction Programs. In Minutes of the Forty-First Annual Meeting, National Association of Physical Plant Administrators of Colleges and Universities. Pasadena, Calif.: California Institute of Technology, May 3-5, 1954. p. 149-164.

123. Planned for Utmost Convenience: Lakeside Dormitory, Mt. Holyoke College. Architectural Record, 107:6, 106-111, June 1950.

124. Postwar Dormitory Group: Rogers Center Residence Halls, Indiana University. Architectural Record, 107:6, 114-117, June 1950.

125. Prep School Dorms. College and University Business, 23:3, 48-49, September 1957.

126. Prototype Residence Hall. Overview, 2:10, 91, October 1961.

127. Quinlan, Francis J. and Daniel P. Webster. How Safe Are the Students? College and University Business, 30:2, 45-48, February 1961.

128. Reaves, J. S. Equipping Residence Halls. College and University Business, 18:4, 26-30, April 1955.

129. Residence Hall for Christian College, Columbia, Missouri. Progressive Architecture, 40:1, 148-150, 166, January 1959.

130. Residence Hall for College Men. Catholic School Journal, 58:6, 86-91, June 1958.

131. Residence Hall Planning Conference. East Lansing, Mich.: Department of General Institutional Management, Michigan State College, December 16-17, 1954. 57 p.

132. Residence Halls for Women Students. Washington: National Association of Deans of Women, National Education Association, 1947. 95 p.

133. Residence Halls in Higher Education; Symposium. *Personnel and Guidance Journal*, 36:6, 392-401, February 1958.

134. A Residence Halls Program for Southern Illinois University. Chicago: Perkins and Will, May 1953. 35 p.

135. Residence Halls, University of California, Berkeley Campus. *Architectural Record*, 127:3, 154-160, March 1960.

136. Ricciuti, I. William. College Housing in the Deep South. *College and University Business*, 27:2, 39-41, August 1959.

137. Richardson, J. P. Dormitories for Wellesley College. *American School and University*, 26:355-360, 1954-1955.

138. Riker, Harold C., and Frank G. Lopez. College Students Live Here. New York: Educational Facilities Laboratories, Inc., 1961. 152 p.

139. Riker, Harold C. Planning Functional College Housing. New York: Bureau of Publications, Teachers College, Columbia University, 1956. 240 p.

140. __________. The Residence Halls We Build. *College and University Business*, 19:5, 49-52, November 1955.

141. Riley, William A. Residence Hall Room with a Difference. *College and University Business*, 11:6, 42, December 1951.

142. R.I.S.D. Climbs Hill. *Progressive Architecture*, 41:9, 143-149, September 1960.

143. Rork, John B. Trends in Residential Construction in Institutions of Higher Education. *Higher Education*, 14:4, 59-62, December 1957.

144. Rupprecht, O. C. Expansion at Concordia College--New Swimming Pool and Dormitory. *American School and University*, 28:351-354, 1956-1957.

145. Sanderson, G. A. Illinois Tech's Two New Residence Halls. *Progressive Architecture*, 36:11, 90-91, November 1955.

146. Schilletter, J. C. Low-Budget Residence Hall for Women. *College and University Business*, 21:6, 32-34, December 1956.

147. Schleman, H. B. Women's Housing. *Journal of the National Association of Deans of Women*, 11:1, 31-39, October 1947.

148. Schubert, Carl W. Wisconsin Has Basic Plan for Seven Residence Halls. *College and University Business*, 10:4, 36-37, April 1951.

149. The Setting Preserved. *Progressive Architecture*, 41:9, 1950-1955, September 1960.

150. Sharp, J. Stanley. Core Design Gives More Room for Living. *College and University Business*, 32:4, 76-78, April 1962.

151. Shearer, Lloyd. A Coed Dormitory. *Parade* (The Sunday Newspaper Magazine), December 11, 1960. p. 6-8.

152. Six-Story High Dormitory Lifts Itself Up on Columns. *Architectural Forum*, 104:5, 160-161, May 1956.

153. Skidmore, Owings and Merrill. Economy Counts in Structure for Antioch Men. *College and University Business*, 23:3, 51, September 1957.

154. Sloane, Louise. Dormitory Rooms. *Progressive Architecture*, 36:7, 127-133, July 1955.

155. Smith, William Jones. Augustana Has Interesting Addition to Dormitory. *College and University Business*, 10:4, 38, April 1951.

156. Some General Specifications for Items Required for Adequate Residence Halls. Berkeley: University of California, 1950. 13 p.

157. Spilman, Raymond. Residence Hall Furniture--A Survey. *College and University Business*, 20:6, 33-40, June 1956.

158. Stallings, Edith L. Standards for Residence Halls with Particular Reference to Women. *College and University Business*, 11:3, 45-46, September 1951.

159. Stauffer, Lee D., *and* Gustave L. Scheffler. How To Design Residence Halls for Safe Living. *College and University Business*, 32:6, 58-61, June 1962.

160. Stewart, R. B. Married or Single, Purdue Will House Them. *College and University Business*, 22:1, 37-41, January 1957.

161. Stinnett, Lowi. Girls' Quarters Rise in Urban Setting. *College and University Business*, 27:2, 42-43, August 1959.

162. Strong, Russel A. Residence Halls--Are They Getting Smaller? *College and University Business*, 20:2, 36-39, February 1956.

163. Strozier, Robert M., *and* Karl Litzenberg. Housing of Students. Washington: American Council on Education, 1950. 68 p.

164. Strozier, Robert M. Educational Planning of Student Housing. *American School and University*, 23:135-138, 1951-1952.

165. Stuhr, Robert L. Drake's Dormitory Project. *College and University Business*, 19:1, 28-29, July 1955.

166. _________. Drake University's New Residence Halls. *American School and University*, 26:351-354, 1954-1955.

167. Survey by ACUHO. In *College Housing*, AIA File D3.3. Washington: American Institute of Architects, July-August 1956. p. 4. (reprint from *Bulletin of the American Institute of Architects*)

168. Survey of Trends in Residence Hall Facilities, 1959. *College and University Business*, 27:2, 32-33, 58, August 1959.

169. Tallman, Robert B. Living Facilities on a New Campus. *American School and University*, 33:J1-J8, 1961-1962.

170. Taylor, Edward K. Multistory Residence Hall Houses Medical Students. *College and University Business*, 21:3, 42-43, September 1956.

171. Taylor, Harold. New Thinking on College Building. *Architectural Forum*, 98:6, 116-118, June 1953.

172. Taylor, Ruel J., *and* Hugh Gibbs. Master-Planned to House 5,000 Students. *College and University Business*, 16:4, 38-40, April 1954.

173. Thiry, Paul. Planned for a Steep, Cold Site. *College and University Business*, 23:3, 50, September 1957.

174. Thoday, D. R. Halls of Residence. *University Quarterly*, 12:45-56, November 1957.

175. Thompson, S. Earl. Designing Rooms for Study and Sleep. *College and University Business*, 16:1, 38-40, January 1954.

176. Three College Dormitories. *Architectural Forum*, 104:4, 154-159, April 1956.

177. Toll, H. C. Cross Plan Selected for Denver. *College and University Business*, 2:3, 14-15, March 1957.

178. Tourtelot, Edward M., Jr. Low in Cost but Without Compromises. *College and University Business*, 19:6, 32-36, December 1955.

179. _________. Men's Residence Hall Built in Record Time and at Low Cost. *College and University Business*, 11:3, 34-38, September 1951.

180. Towered Dorms; Harvard's Leverett House. *Architectural Forum*, 115:3, 128-129, September 1961.

181. Trial-Tested College Dorm--Case Institute of Technology. *Architectural Record*, 111:6, 207, 242, June 1952.

182. Trinity Dormitory Sets New Low-Cost Record for Lift-Slab Savings. *Architectural Forum*, 95:3, 183, September 1951.

183. Turrentine, Florence. Henderson College's New Apartments for Married Students. American School and University, 28:419-422, 1956-1957.

184. University of California Chooses Warnecke Dormitory Design in Invitational Competition. Architectural Record, 120:4, 10-12, October 1956.

185. University of California Residence Halls. Progressive Architecture, 40:1, 150-151, January 1959.

186. University of Illinois, Men's Residence Hall Survey. Chicago: Skidmore, Owings and Merrill, 1950. 87 p. (Mimeographed)

187. University of South Carolina Dormitories. Architectural Record, 123:2, 186-189, February 1958.

188. Van Note, William G. New Men's Residence for Clarkson College. American School and University, 29: 331-334, 1957-1958.

189. Van Zwoll, James A. Policy and College Housing. Higher Education, 13:134-137, March 1957.

190. Wank, Roland A. Fairleigh Dickinson University Grows and Grows. American School and University, 29: 286-302, 1957-1958.

191. Warnecke, John Carl. University Residence Hall. The School Executive, 76:7, 58-59, March 1957.

192. __________. "Villages" for Seminarians. College and University Business, 23:3, 41, September 1957.

193. Wellesley College Builds Two New Dormitories. Architectural Record, 111:7, 26, July 1952.

194. Wells, William C. Every Loyal Maine Man Could Enjoy This New Residence Hall. College and University Business, 21:5, 44-46, November 1956.

195. Wiese, William, II. Housing Units for Vermont's "400." College and University Business, 25:2, 28-31, August 1958.

196. Williamson, E. G., and W. M. Wise. Symposium: Residence Halls in Higher Education. Personnel and Guidance Journal, 36:392-401, February 1958.

197. Wilson, Don. Are Your Residence Halls Fire-Safe? College and University Business, 27:2, 52, 54, August 1959.

198. Withy, John T. Low-Budget Residence Hall for Men. College and University Business, 21:6, 35-37, December 1956.

199. Women's Dormitories for the University of Missouri, Columbia, Missouri. Progressive Architecture, 39:1, 90-91, January 1958.

200. Women's Dormitory, University of Chicago. Architectural Record, 128:5, 136-137, November 1960.

201. Women's Residence Halls: Their Function in Modern Education. Journal of the National Association of Women Deans and Counselors, 20:2, 51-96, January 1957.

202. Young, Theodore J. Dormitories. American School and University, 22:151-170, 1950-1951.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University
Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

August 1962 OE-51004-10

CAMPUS PARKING BIBLIOGRAPHY

by E. Eugene Higgins, Specialist for Physical Facilities
and
Dorothy M. Jones, Research Aide

With the ever-increasing higher education enrollments, colleges are constantly exploring feasible solutions to the accompanying problem of campus parking. To assist planners in this problem area, the Office of Education has compiled a bibliography for distribution in this data sheet.

Standard procedure on the majority of campuses includes registration of automobiles, controlled parking areas, and the use of tags or windshield stickers. Charges for parking are in effect on some campuses; sometimes parking meters have been installed. There are instances in which attendants or mechanical gates are utilized in the parking areas. Many institutions have found it necessary to prohibit certain students, usually in the junior division, from possessing and operating automobiles on their campuses.

Land, particularly around a college, has become so valuable today that institutional growth in the matter of buildings alone is often quite difficult, and yet student and faculty passenger vehicles must be reckoned with in campus planning. The bibliography includes accounts of the ways this problem has been met at many institutions.

CAMPUS PARKING BIBLIOGRAPHY

1. Alexander, Robert A. They Built a Union for Medics. *College and University Business*, 31:6, 42-44, December 1961.

2. An Approach to College Design. Oklahoma City: Caudill, Rowlett and Scott, n.d. p. 35-36, 88-89, 113-114, 117, 125.

3. Aust, Alden. Now Registering on Campus: The Parking Meter. *College and University Business*, 21:5, 26-28, November 1956.

4. Baker, Geoffrey H., *and* Bruno Funaro. Parking. New York: Reinhold Publishing Corporation, 1958. 202 p.

5. Bennett, Wells. Personal Car and the Campus. *Journal of the American Institute of Architects*, 26:3, 105-110, September 1956.

6. Brandstatter, A. F. For Control of Student Driving, Try the Student Court. *College and University Business*, 20:5, 31-32, May 1956.

7. Burrage, Robert H., *and others*. Parking Guide for Cities. Washington: Bureau of Public Roads, Department of Commerce, 1956. 172 p.

8. Burstein, Harvey. On-Campus Parking Means Registration, Fees and Some Type of Control. *College and University Business*, 27:1, 39-41, July 1959.

9. Campus Planning Bulletin No. 9. Columbus, O.: Office of Campus Planning, Ohio State University, November 1961. p. 17-18.

10. The College Heights Campus Project. In *Educational Specifications for the College Heights Campus*. San Mateo, Calif.: College of San Mateo, 1958. p. 7-8, 14.

11. Fowler, Charles F. Well Designed Parking Areas. *College and University Business*, 17:6, 24-27, December 1954.

12. Hammond, Harold F., *and* Leslie J. Sorenson, *editors*. Traffic Engineering Handbook. Washington: Institute of Traffic Engineers, 1950. 285 p.

13. Hannum, Paul C. The Cars That Come to the Campus. *College and University Business*, 22:2, 33-36, February 1957.

14. Hoogesteger, H. H. Parking Stickers. *College and University Business*, 32:1, 6, January 1962.

15. How To Lay Out a Parking Lot. Chicago: Western Industries, Inc., 1960. 37 p.

16. Illuminating Engineering Society. Parking Area Lighting. In *IES Lighting Handbook*, 3d ed. New York: The Society, 1959. Chap. 13, p. 14-15.

17. Jakad, William. Committee Controls Traffic Step-by-Step. *College and University Business*, 32:6, 47-52, June 1962.

18. Lautner, H. W. Building Traffic Safety into a Campus. *College and University Business*, 29:1, 27-29, July 1960.

19. Middlebrook, William T. How To Estimate the Building Needs of a College or University. Minneapolis, Minn.: The University of Minnesota Press, 1958. p. 11, 65.

20. Netsch, Walter A., Jr. Master-Planning the College or University. *Tri-Quarterly*, 4:3, 7, 8, 10, Spring 1962.

21. Number One College Problem: Parking on Campus. *Nation*, 187:371-372, November 22, 1958.

22. Owen, Wilfred. The Problem of Parking Facilities. *Public Roads*, 22:5, 103-112, July 1941.

23. Parking Facilities. *Journal of the American Institute of Architects*, 28: 5, 311-322, September 1957.

24. Parking Facilities. *Journal of the American Institute of Architects*, 28: 6, 367-374, October 1957.

25. Parking Manual: How To Solve Community Parking Problems. Washington: American Automobile Association, 1946. 181 p.

26. Parking Programs for Universities. Madison, Wis.: University Facilities Research Center, University of Wisconsin, March 1962. 29 p.

27. Parking-Service Areas. In *Planning Facilities for Health, Physical Education and Recreation*. Chicago: The Athletic Institute, Inc., 1956. p. 34, 119.

28. Parking Spaces and Driveways. In *Time-Saver Standards*. New York: F. W. Dodge Corporation, 1950. p. 555.

29. Pearce, H. W. Parking Lot Control. *College and University Business*, 20:4, 46-47, April 1956.

30. Ramsey, Charles G., *and* Harold R. Sleeper. Architectural Graphic Standards, 4th ed. New York: John Wiley and Sons, Inc., 1952. p. 484-485.

31. Riker, Harold C. Land-Use Requirements. In *Planning Functional College Housing*. New York: Bureau of Publications, Teachers College, Columbia University, 1956. p. 88-89.

32. Sheeder, F. Thomas. How To Control Your Parking Situation for Better Utilization and a Safer Campus. *College and University Business*, 31:4, 49-51, October 1961.

33. Suber, L. T. Bicycles Solve Some Traffic Problems--Create Others. *College and University Business*, 32:6, 65-66, June 1962.

34. Suber, Terry. Parking, a Cyclopean Problem. In *NAPPA Newsletter*, 9:7, 22-27, February 1962.

35. Walshe, T. G. We Solved the Parking Problem on Our Campus. *College and University Business*, 30:4, 62-64, April 1961.

36. Weinstock, Ruth. The Parking Problem. In *Space and Dollars: An Urban University Expands*. New York: Educational Facilities Laboratories, Inc., 1961. p. 26-27.

37. Wood, Frederic C. The Parking Problem. In *Efficient Operation and Economical Expansion of Undergraduate Teaching Facilities of Urban Universities*. Philadelphia, Pa.: Drexel Institute of Technology, May 1, 1960. p. 10-11, 15-16.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

August 1962 OE-51004-11

STUDENT INFIRMARY PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities
and
Dorothy M. Jones, Research Aide

In some cases higher education institutions are finding it advantageous to build and maintain infirmaries on a much more ambitious scale than that of the health center of a generation ago which usually occupied whatever space could be spared around the campus. Varying degrees of medical services are offered at the infirmary, depending upon the size of the institution and its proximity to other medical facilities of the community. Careful planning must precede the construction of such a building, and the medical functions for consideration in its arrangement include prevention, medical care, and rehabilitation. Living quarters for nurse(s) and staff are an integral part of the building. Generally, the student pays a small charge over and above his semester medical fee for treatment such as x-rays, laboratory tests, drugs, and hospitalization. This release includes a list of student infirmaries reported to have been occupied for the first time during the 1948-57 decade[1] (List A) and a bibliography for student infirmary planning (List B).

List A.--Student Infirmary Buildings Reported To Have Been Occupied for the First Time During the 1948-57 Calendar Decade

State and institution	Name of building	Year
Alabama		
Stillman College	Infirmary	1950
Arizona		
Arizona State University, Tempe	Infirmary, Student Health Center	1954
Grand Canyon College	Infirmary	1953
Arkansas		
Agricultural, Mechanical and Normal College	Browne Infirmary	1952
Ouachita Baptist College	Infirmary	1948
Southern State College	Infirmary	1950

---

[1] This list has been compiled from data reported for part 3 of the *College and University Facilities Survey*, a 5-part survey begun in 1956 by the Office of Education. Part 3 respondents represent 84.9 percent of the higher education institutions in the aggregate United States, and these institutions enrolled 95.5 percent of the fall 1957 enrollment in higher education.

State and institution	Name of building	Year
California		
Chico State College	Health Center	1956
Claremont University College	Baxter Medical Building	1952
Compton District Junior College	Health Building	1953
Glendale College	Student Health Center	1950
Los Angeles Valley College	Health Office - Single	1951
Sacramento State College	Student Health	1957
San Diego State College	Health	1953
San Francisco State College	Health Center	1956
University of California, Davis Campus	Student Health Center	1952
Connecticut		
Connecticut College	Infirmary	1951
University of Bridgeport	Infirmary	1954
Delaware		
University of Delaware	Laurel Hall (Health Center)	1956
Georgia		
Agnes Scott College	Waters Infirmary	1949
Morehouse College	S. H. Archer Infirmary	1948
Iowa		
Grinnell College	Younker Memorial Health Center	1957
State University of Iowa	Student Infirmary	1951
Louisiana		
Louisiana Polytechnic Institute	Student Infirmary	1954
Northeast Louisiana State College	Infirmary	1957
Southeastern Louisiana College	Health Center	1948
Maryland		
Morgan State College	Woolford Infirmary	1955
Western Maryland College	Thompson Infirmary	1950
Massachusetts		
Brandeis University	Stoneman Infirmary	1954
Wheaton College	Wheaton College Infirmary	1951
Minnesota		
University of Minnesota, Minneapolis	Health Service	1949
New Hampshire		
Colby Junior College for Women	Baird Infirmary	1955
New York		
Bennett College	Infirmary	1949
North Carolina		
Brevard College	Mary Frances Stamey Memorial Infirmary	1948
Southeastern Baptist Theological Seminary	Infirmary	1951
Wingate College	Dickerson Infirmary	1956
North Dakota		
University of North Dakota	Rehabilitation Treatment Center	1957
Ohio		
Kent State University	Student Health Center	1950
Marietta College	Infirmary	1949
Oklahoma		
Central State College	Infirmary	1953
Eastern Oklahoma Agricultural and Mechanical College	Infirmary	1948
Oregon		
University of Portland	Infirmary	1949
Willamette University	Bishop Memorial Health Center	1955
South Carolina		
Bob Jones University	Hospital	1950
South Carolina State College	Brooks Infirmary	1955

State and institution	Name of building	Year
South Carolina--con.		
Voorhees School and Junior College	Jessie Dorsey Green Infirmary	1949
Tennessee		
Middle Tennessee State College	Infirmary	1948
Southern Missionary College	Clinic	1950
Southwestern at Memphis	Infirmary	1948
Texas		
Austin College	Adams Health Center	1951
Midwestern University	Vinson Infirmary	1950
Southwest Texas State College	Infirmary	1951
Southwestern University	McCook-Crain Clinic	1953
Texas Southern University	Medical Clinic	1955
Texas Technological College	Infirmary	1956
University of Texas, Austin	Student Health Center	1951
Utah		
Brigham Young University	Health Center	1956
Vermont		
Norwich University	Ainsworth Infirmary	1950
Virginia		
Mary Washington College of the University of Virginia	Hugh Mercer Hall	1952
Randolph-Macon Woman's College	Infirmary	1950
Virginia State College	Memorial Hospital	1951
Washington		
Pacific Lutheran University	Student Health Center	1956
Walla Walla College	Health Center	1948

List B.--Student Infirmary Planning Bibliography

1. Atchison, Paul. Western State College Plans a Building for Health and Physical Education. *College and University Business*, 12:6, 39-40, June 1952.
2. Bernhard, Harold C. New Infirmary is Pleasant, Functional. *College and University Business*, 19:4, 38-42, October 1955.
3. Facilities Standards. In *State College Administrative Manual*. Sacramento, Calif.: Department of Education, State of California, July 1960. Sec. 6611.
4. Health Center. In *Educational Specifications for the College Heights Campus*. San Mateo, Calif.: College of San Mateo, June 1958. p. 46-47.
5. Health Service Facilities. In *School Planning Manual*. (Vol. 27, No. 4.) Richmond, Va.: School Building Service, State Department of Education, Commonwealth of Virginia, November 1954. p. 189-197.
6. Hurtado, Edward. Rutgers Opens Health Service Building. *College and University Business*, 27:6, 30-33, December 1959.
7. Jacoby, George W., Jr. College Health Service. *College and University Business*, 1:3, 7-9, September 1946.
8. School Health Facilities. In *Planning Facilities for Health, Physical Education, and Recreation*, rev. ed. Chicago: The Athletic Institute, Inc., 1956. p. 72-82.
9. Turner, M. K. College Faculty Plans for Student Health. *Journal of Health, Physical Education and Recreation*, 25:17-18, October 1954.
10. Weinstein, Alex. Nebraska's New Student Health Center. *College and University Business*, 27:6, 34-37, December 1959.
11. White, Robert Leon. Texas Builds a Student Health Center. *College and University Business*, 11:5, 44-46, November 1951.

GPO 933448

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education
HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

August 1962 OE-51004-12

SPACE UTILIZATION

by E. Eugene Higgins, Specialist for Physical Facilities
and
Dorothy M. Jones, Research Aide

Earlier releases in this series have reported normative data with regard to science facilities, libraries, general classrooms, married-student apartments, and residence halls for single students, including assignable area and number of student stations or capacity, as appropriate, for higher education buildings reported in a survey. These early releases represented preliminary data from Part 3 of the College and University Facilities Survey, entitled "Inventory of College and University Physical Facilities, December 31, 1957."[1]

In the first of this series (OE-51004-1, page 2, item 5) it was pointed out that one of the specific (and very important) values to an institution of its inventory is that it provides a basis for a space utilization study. Desiring to encourage such studies, the Office of Education has compiled a space utilization bibliography from which individual colleges or higher education groups can work in either self-surveys or multi-college studies. Further, it is hoped that copies of such utilization studies will be made available to the Office of Education, thereby providing comparative information for which frequent inquiry is made.

It is recognized today that all institutions are concerned with the problem of providing for larger and larger student enrollments and that optimum use of existing facilities is the first step toward solution of the problem. Ideally such a step should precede planning for expansion of facilities.

---

[1] Now in process.

SPACE UTILIZATION BIBLIOGRAPHY

1. Avots, Ivar. Space Utilization Studies. College and University Business, 24:3, 36-37, March 1958.

2. Ayers, Archie R. (director). Report of an Evaluative Planning Survey of Howard College. Washington: Division of Higher Education, Office of Education, U. S. Department of Health, Education, and Welfare, September 1960. p. 75-85.

3. Board of Control. A Manual for the Study of the Utilization of Institutional Space. Tallahassee, Fla.: The Board, State University System, 1959. 45 p.

4. Brewster, Sam F. (chairman). Study of Classroom Use. In Study of the Physical Plant Requirements of the Alabama Polytechnic Institute from 1955 to 1970. Auburn, Ala.: Building Program Committee, Alabama Polytechnic Institute, July 1955. p. 12-19.

5. Brumbaugh, A. J. How Can We Use Educational Facilities More Effectively? *The Educational Record*, 37:102-105, April 1956.

6. Bursch, Charles, *and* Ruel J. Taylor. Master Plans. *College and University Business*, 9:5, 27-31, November 1950.

7. Charles, Harvey (director). A Study of Room Utilization and Student-Station Use, John Carroll University. Cleveland, O.: Department of Education, John Carroll University, n.d. 33 p. (Xerox)

8. Classroom Utilization, Michigan State College, Fall 1954. East Lansing: Office of Registrar, Michigan State College, n.d. 56 p.

9. College Buildings: Space Analysis. *Progressive Architecture*, 33:2, 61-79, February 1952.

10. Colvert, C. C. Building Needs for Carver College. In *Educational Planning for Carver College on the New Campus*. Charlotte, N.C.: The Board of Trustees, Charlotte Community College System, September 1959. p. 29-49.

11. Constance, Clifford L. Techniques of a Space-Utilization Survey. *College and University*, 32:1, 29-33, Fall 1956.

12. Cornell, Francis G. How To Manage Space. *College and University Business*, 30:5, 61-65, May 1961.

13. Cutler, M. Space Utilization and Classroom Assignment. *College and University*, 26:4, 510-511, July 1951.

14. Dahnke, H. L. Some Random Thoughts on Space Utilization. *College and University*, 36:1, 79-87, Fall 1960.

15. Digest of a Restudy of the Needs of California in Higher Education. Berkeley: The University of California Printing Department, 1955. p. 79-80.

16. Doi, James I., *and* Keith L. Scott. Normative Data on the Utilization of Instructional Space in Colleges and Universities. Athens, O.: American Association of Collegiate Registrars and Admissions Officers, Ohio University, July 1960. 24 p.

17. Erfft, Kenneth R. Use of Space--A Costly Commodity. In *Buying for Higher Education*, 26:5, 3-8. Garden City, N.Y.: National Association of Educational Buyers, May 1959.

18. Facilities Standards. In *State College Administrative Manual*. Sacramento, Calif.: Department of Education, State of California, February 1961. Sec. 6020-6111.

19. Field, Herman H. A Graphic Method of University Space Analysis. *American School and University*, 21:75-80, 1949-1950.

20. Forster, R. L. Planning for Effective Space Utilization. *Management Review*, 45:989-994, November 1956.

21. Fowlkes, John Guy. Utilization and Expansion of Classroom and Laboratory Facilities in Colleges and Universities. Madison, Wis.: School of Education, University of Wisconsin, 1946. 6 p. (Mimeographed)

22 Fuller, William S. How to Keep Space Planning Down to Earth. *College and University Business*, 32:4, 63-66, April 1962.

23. Gawthrop, Paul R. A Study of the Present Utilization of Physical Facilities Together with a Projection of Enrollment for 1960, 1965, 1970. Marietta, O.: Marietta College, 1955. 28 p.

24. Hart, Frank W. Needed Research in College and University Plant Use and Plant Planning. *American School and University*, 23:121-124, 1951-1952.

25. Hauf, Harold D. Utilization of Space Facilities. *Current Issues in Higher Education*. Washington: Association for Higher Education, 1960. p. 203-204.

26. Havens, C. S. The Tidal Wave. *College and University Business*, 19:6, 19-22, December 1955.

27. Hengst, Herbert R., *ed.* The Planning and Utilization of Instructional Facilities. (Conference Proceedings, August 8-9, 1960.) East Lansing, Mich.: Center for the Study of Higher Education, Michigan State University. 156 p.

28. Higgins, E. Eugene. Planning Facilities for Junior Colleges. In *Proceedings: 19th Annual Junior College Conference*. (February 8-9, 1960.) Austin, Tex.: Association of Texas Junior College Board Members and Administrators, and the University of Texas. p. 31-33, 36-38.

29. Hollis, Ernest V. (director). A Report of a Survey for North Dakota Legislative Research Committee and State Board of Higher Education, Volume II. Bismarck: The Committee and Board, October 1958. p. 80-103.

30. Hollis, Ernest V., *and* J. Harold Goldthorpe. Improving College Space Utilization. *College and University*, 23:507-520, July 1948.

31. Holy, T. C., *and* Ronald B. Thompson. Utilization of College and University Buildings. *American School and University*, 20:41-45, 1948-1949.

32. Holy, T. C., H. H. Semans, *and* T. R. McConnell. A Restudy of the Needs of California in Higher Education. Sacramento: California State Department of Education, 1955. p. 315-323.

33. Hungate, T. L., *and* Berton Swan. The Use and Condition of Space at Teachers College. New York: Columbia University, September 1955. 21 p.

34. Jamrich, J. X. Use and Planning of Instructional Facilities in Small Colleges. *North Central Association Quarterly*, 35:239-244, January 1961.

35. Jones, Donald A. Physical Facilities Analysis for Colleges and Universities. Oneonta, N.Y.: American Association of Colleges for Teacher Education, 1958. 211 p.

36. Joyal, Arnold E. (chairman), *and others*. Changing Space Standards Within the University. In *The Costs of Higher Education in California, 1960-1975*. Berkeley and Sacramento: Liaison Committee, Regents of the University of California and State Board of Education, 1960. p. 91.

37. __________. Costs of New State College and University Campuses. In *The Costs of Higher Education in California, 1960-1975*. Berkeley and Sacramento: Liaison Committee, Regents of the University of California and State Board of Education, 1960. p. 69-77.

38. Junior, Estes J., Jr. Space Utilization in Our Colleges and Universities: Why, When, Where, How? *Proceedings: 19th Annual Meeting, American Association of College Business Officers*. (April 24-26, 1958.) Washington: The Association. p. 22-31.

39. Kinne, W. S., Jr. (director). Planning Standards and Classroom Utilization. In *Horizontal and Vertical Circulation in University Instructional and Research Buildings*. Madison, Wis.: University Facilities Research Center, University of Wisconsin, November 1961. p. 6-8.

40. Lambert, A. C. Don't Plan Too Many Small Classrooms. *College and University Business*, 16:4, 47-48, April 1954.

41. Long, James D., and J. B. Black, Jr. Needed Expansion of Facilities for Higher Education--1958-1970: How Much Will It Cost? Washington: American Council on Education, 1958. p. 11-12.

42. Martorana, S. V. (director). Higher Education in South Dakota: A Report of a Survey, Volume II. Pierre, S.D.: Legislative Research Council, Board of Regents of Education, South Dakota Association of Private Colleges, September 1960. p. 165-268.

43. Masiko, Peter, Jr. Here's a College That Approaches Complete Use of Classroom Space. *College and University Business*, 20:5, 23-24, May 1956.

44. McCown, Henry Y. Space Utilization. In *Proceedings: 43rd Annual Meeting, Central Association of College and University Business Officers*. (Stillwater, Oklahoma, April 25-27, 1954.) St. Louis, Mo.: The Association, Washington University. p. 37-47.

45. Middlebrook, William T. How To Estimate the Building Needs of a College or University. Minneapolis, Minn.: The University of Minnesota Press, 1958. 169 p.

46. ________. Space Utilization. *College and University Business*, 8:5, 24-26, May 1950.

47. ________. Space Utilization--University of Minnesota, Minneapolis and St. Paul Campuses. In *Minutes of the 38th Annual Meeting of the Central Association of College and University Business Officers in Joint Session with the 11th Annual Meeting of the Western Association of College and University Business Officers*. (Denver, Colorado, June 26-29, 1949.) St. Louis, Mo.: The Central Association, Washington University. p. 56-60.

48. ________. Space Utilization Worked Out at Minnesota May Serve as a General Guide. *College and University Business*, 8:5, 25-26, May 1950.

49. Morphet, Edgar L. The Measurement and Interpretation of School Building Utilization. (Contributions to Education No. 264.) New York: Teachers College, Columbia University, 1927. 102 p.

50. Neil, James William. Instructional Space Requirements in Colleges, Universities. Berkeley: Graduate Division, the University of California, 1949. 120 p. (doctor's thesis)

51. Palmer, R. Ronald. Utilization of Space Facilities. *Current Issues in Higher Education*. Washington: Association for Higher Education, 1960. p. 207-208.

52. Petrie, Roy G. A Plan for the Measurement of Room Use in Colleges and Universities. In *Stanford University Abstracts of Doctoral Theses*. Stanford, Calif.: Stanford University, 1950. p. 472-475.

53. Physical Facilities Survey and Utilization Study, Wisconsin State Colleges and the University of Wisconsin, Fall 1961. Joint Staff Study No. 5. Madison: Coordinating Committee for Higher Education in Wisconsin, 1962. 166 p. (Mimeographed)

54. Physical Plant Inventory and Space Utilization Survey, Concordia Teachers College, River Forest, Illinois. Chicago: Perkins and Will, June 1958. 65 p.

55. Pickup, Robert E. (executive director). Facility Survey of Muskegon Community College Enrollment Potential and Fiscal Capacity. Report No. 210. Detroit: Citizens Research Council of Michigan, January 1962. p. 23-24.

56. The Planning and Utilization of Instructional Facilities. East Lansing, Mich.: Center for the Study of Higher Education, Michigan State University, August 1960. 156 p.

57. Portugal, Eugene J. A Preliminary Report on the Application of the Space Adequacy Survey-College at Seventeen Selected California Junior Colleges. Sacramento: The Bureau of School Planning, California State Department of Education, November 1961. 65 p.

58. Punke, H. H. Use of College Building Space. *College and University*, 25:76-92, October 1949.

59. Raper, William Elmer. A Study of Physical Plants and Their Utilization in Tennessee State-Supported Institutions of Higher Education. Knoxville: University of Tennessee, 1957. 188 p. (typed-unpublished doctoral dissertation)

60. Russell, John Dale. The Finance of Higher Education. Chicago: University of Chicago Press, 1954. p. 344-345.

61. _________. Space Utilization. In *Proceedings of the 47th Annual Meeting, Central Association of College and University Business Officers*. (Chicago, May 4-6, 1958.) St. Louis, Mo.: The Association, Washington University. p. 56-67.

62. _________. The Utilization of Building Space in Institutions of Higher Education. *College and University* 32:4, 481-493, Summer 1957.

63. Russell, John Dale, and James I. Doe. Manual for Studies of Space Utilization in Colleges and Universities. Athens, O.: American Association of Collegiate Registrars and Admissions Officers, 1957. 130 p.

64. Russell, John Dale, and John X. Jamrich. Space Utilization and Value of Physical Plants in Michigan Institutions of Higher Education (Staff Study No. 9.) Lansing: The Survey of Higher Education in Michigan, State Capitol, June 1958. 214 p.

65. Schwehr, Frederick E. (director). A Survey of Physical Facilities at Wisconsin State Colleges and the University of Wisconsin, Fall 1958. (Staff Study XXXIII, Part I.) Madison: The Coordinating Committee for Higher Education, April 1960. 116 p.

66. _________. A Survey of Physical Facilities at Wisconsin State Colleges and the University of Wisconsin, Fall 1958. (Staff Study XXXIII, Part II.) Madison: The Coordinating Committee for Higher Education, June 1960. 65 p.

67. _________. A Survey of Physical Facilities at Wisconsin State Colleges and the University of Wisconsin, Fall 1958. (Staff Study XXXIII, Part III.) Madison: The Coordinating Committee for Higher Education, August 1960. 52 p.

68. Scribner, A. F. Space Utilization Manual in Preparation. *Higher Education* 13:5, 94, January 1957.

69. _________. Utilization of Institutional Space; Summarization of Panel Discussion. *College and University*, 31:4, 490-493, Summer 1956.

70. Sears, L. C. Harding College Preliminary Space Study. Searcy, Ark.: Harding College, 1959. 20 p. (Mimeographed)

71. Sleeper, H. R. Space Utilization and Gym Seating. *School Coach*, 19:18+, January 1950.

72. Smith, Donovan E. Better Utilization--But Watch Out! *College and University Business*, 25:2, 17, August 1958.

73. _________. Building Space Utilization at the University of California. *Minutes of the 38th Annual Meeting of the Central Association of College and University Business Officers in Joint Session with the 11th Annual Meeting of the Western Association of College and University Business Officers.* (Denver, Colorado, June 26-29, 1949.) St. Louis, Mo.: The Central Association, Washington University. p. 60-63.

74. _________. Effective Use of Space. *College and University Business*, 19:3, 34-36, September 1955.

75. _________. How Can Institutions Increase the Effectiveness of the Use of Space? Paper presented to Discussion Group 17, 10th National Conference on Higher Education, Association for Higher Education. (Chicago, February 28, 1955.) Washington: The Association. p. 150-158.

76. _________. Report on Utilization of General Classrooms, Fall Term 1946. Berkeley, Calif.: University of California, 1947. 19 p. (Mimeographed)

77. Space Programming and Physical Plant Investment in American Colleges and Universities, 1957-1970. New York: Space Utilization Analysis, Inc., n.d. p. 11-14.

78. Space Utilization: Committee Report. Fayetteville, Ark.: University of Arkansas, May 1955. 27 p. (Mimeographed)

79. Space Utilization. In "Physical Plant." In *College and University Business Administration, Vol. 2.* Washington: American Council on Education, 1955. p. 22-23.

80. Space Utilization Studies. *College and University Business*, 22:4, 22, April 1957.

81. State Building Construction Program. (Report to the Joint Legislative Budget Committee.) Sacramento, Calif.: Department of Finance, State of California, 1956. p. 44.

82. Stone, Robert F. A Determination of the Capacity and Cost of Recently Constructed California Public Junior Colleges. Sacramento: California State Department of Education, March 1960. 83 p. (Mimeographed)

83. A Study of Utilization of Permanent Instructional Space in the Florida State University, Fall Semester, 1960. Tallahassee: Office of Institutional Research and Service, Florida State University, 1961. 53 p.

84. Taylor, Roger. Space Utilization. In *Minutes of the 39th Annual Meeting of the Eastern Association of College and University Business Officers*. (Atlantic City, New Jersey, November 30-December 2, 1958.) Boston, Mass.: The Association, Boston University. p. 134-140.

85. _________. How to Plan and Achieve Maximum Facility Usage. *College and University Business*, 30:5, 59-60, May 1961.

86. Thompson, Kelly. "Step Schedule" Increases Classroom Utilization. College and University Business, 30:5, 66-67, May 1961.

87. Thompson, Ronald B. Efficient Plant Utilization. College and University, 32:2, 222-226, Winter 1957.

88. To Build or Not To Build: A Report on the Utilization and Planning of Instructional Facilities in Small Colleges. New York: Educational Facilities Laboratories, Inc., 1962. 38 p. + 31 p. Workbook.

89. Utilization of Facilities at City College of San Francisco. In Building Needs: City College of San Francisco. San Francisco, Calif.: City College of San Francisco, March 2, 1956. p. 60-66. (Mimeographed)

90. Weinstock, Ruth. The Arrangement and Use of Space to Achieve High Utilization. In Space and Dollars: An Urban University Expands. (Case Studies of Educational Facilities No. 2.) New York: Educational Facilities Laboratories, Inc., 1961. p. 28-36.

91. Wells, Harry L. Higher Education Is Serious Business. New York: Harper and Brothers, 1953, p. 153-177.

92. ________. Northwestern University Establishes Standards for Economical Use of Space. College and University Business, 7;3, 4-7, September 1949.

93. Wood, Frederic C. Efficient Operation and Economical Expansion of Undergraduate Teaching Facilities of Urban Universities. Philadelphia: Drexel Institute of Technology, May 1, 1960. p. 4-7, 14.

GPO 932493

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education
HE
College and University
Physical Facilities Series
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education
August 1962
OE-51004-13

COLLEGE UNION PLANNING AIDS

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

It is difficult to realize that at the close of World War I there were only a dozen or so union buildings on the college campuses of the United States and that even in the twenties unions were still regarded as men's private territory at many institutions. The male exclusiveness was a natural consequence of the history of the union as an offspring of Englishmen's early debating societies (at Oxford). In the thirties, however, a movement began to admit the "finer things" to the union, including music rooms, theaters, art facilities, and the presence of women. Today several hundred union buildings grace the college campuses, costing up to $9 million per building. Of course many unions are housed in buildings used primarily for other educational purposes. This series release contains a list (List A) of union buildings reported to have been occupied for the first time during the period 1948-57;[1] and a bibliography for college union planning (List B). These lists will be useful as resource material for college union planning groups.

"The Role of the College Union" (the statement of purpose adopted by the Association of College Unions in 1956) defines the union as serving the college in four ways: (1) as a community center, (2) as the college living-room or hearthstone, (3) as a part of the college educational program, and (4) as a unifying force in the college life. The first, second, and fourth services have generally been the most recognized and understood functions of the past, but it is the third service which is fast becoming the foremost function of today's union. The day of satisfaction with a "service-station" union that occasionally sponsors a big dance is gone. Unions are being staffed more and more competently, and a planned program is under way which encompasses some or all of the following areas: music, arts, theater, games, crafts and hobbies, films, book reviews, conference and discussion groups, food service, and social affairs. The union is not restricted to the 4-year institution; it now has a prominent place in the institutional planning of the junior college. Moreover, each year finds additional foreign countries adopting the union as a part of their physical facilities.

In a 1957 graduate thesis, "The Relationship of Union Committee Experience at the University of Wisconsin to Post-College Citizenship," Anne Minahan found that former union committee members, as compared to a cross-section group of former students who did not participate in the union committees, were more active in their respective communities as follows: 20 percent more in vocational, community, and school-related organizations; 10 percent more in church-related organizations; 80 percent more in art organizations; and 40 percent more in service clubs. Such a report is very gratifying to those who believe in the union as an integral part of the student's educational program.

---

[1] This list is compiled from data reported for part 3 of the *College and University Facilities Survey*, a 5-part survey begun in 1956 by the Office of Education. Part 3 respondents represent 84.9 percent of the higher education institutions in the aggregate United States, and these institutions enrolled 95.5 percent of the fall 1957 enrollment in higher education.

It will be seen from List A that 197 buildings began their union service during the 1948-57 calendar decade. Forty-two States are represented in the listing. Texas led in the number for this period, reporting 21 unions, 8 of which were at junior colleges; California was next with 19 unions, 14 of which were at junior colleges.

List A.--College Union Buildings Reported To Have Been Occupied for the First Time During the 1948-57 Calendar Decade

State and institution	Name of building	Year
Alabama		
Auburn University	Auburn Union	1953
Howard College	Student Union Building-Food Center	1957
Troy State College	Student Center	1955
Arizona		
Arizona State University	Memorial Union	1955
Grand Canyon College	Student Center	1955
University of Arizona	Student Union	1951
Arkansas		
Agricultural, Mechanical, and Normal College	Lawrence A. Davis Student Union	1952
Arkansas Agricultural and Mechanical College	Baptist Student Union	1954
	Student Union and Ballroom	1952
Arkansas State Teachers College	Student Center	1957
Harding College	Ganus Student Center	1951
California		
Bakersfield College	Campus Center	1955
Coalinga Junior College	Student Center	1957
College of Notre Dame	Tabard Inn	1949
Compton District Junior College	Student Union	1953
El Camino College	Campus Center	1949
Fullerton Junior College	Student Center	1957
Los Angeles Harbor College	Campus Center	1949
Los Angeles Valley College	Student Lounge	1951
Monterey Peninsula College	Student Union	1948
Napa College	Student Union	1956
Oceanside-Carlsbad College	College Center	1955
Orange Coast College	Student Center	1953
Pacific School of Religion	1717 Arch Street	1957
San Bernardino Valley College	Student Center	1955
Santa Monica City College	Student Union	1952
University of California, Davis Campus	Union	1955
University of Redlands	Student Union	1952
University of Southern California	Y.W.C.A.	1950
Ventura College	Campus Center	1955
Colorado		
Colorado State University	Student Union Annex	1950
Fort Lewis Agricultural and Mechanical College	Raman A. Miller Student Center	1957
Loretto Heights College	Machebeuf Hall	1951
University of Colorado	Memorial Center	1953
University of Denver	Student Union	1950
Western State College of Colorado	College Union	1955
Connecticut		
University of Bridgeport	Alumni Hall	1951
Florida		
Florida Agricultural and Mechanical University	Student Union	1956
Florida State University	Student Center	1952
Orlando Junior College	Scotland Yard	1953
Webber College	Grace K. Babson Student Center	1957
Georgia		
Brewton-Parker College	Co-op	1950
Emory University	Alumni Memorial	1950
Mercer University	Student Center	1957
Illinois		
Blackburn College	CHC Anderson Student Center	1954
Bradley University	Student Center	1957
Illinois State Normal University	University Union	1956
Lake Forest College	Korhumel Student Center	1951
Western Illinois University	Student Center	1957
Wheaton College	Memorial Student Center	1952
Indiana		
Ball State Teachers College	L. A. Pittenger Student Center	1953

State and institution	Name of building	Year
Indiana--con.		
Butler University	Atherton Center	1950
Evansville College	McCurdy Alumni Memorial Union	1951
Indiana University, Indianapolis Campus	Food Service Building	1953
Valparaiso University	Valparaiso Union	1955
Iowa		
Central College	Memorial Union	1954
Graceland College	The Memorial Student Center	1949
Iowa Wesleyan College	John Wesley Holland Student Union	1957
Wartburg College	Memorial Union	1955
Westmar College	Weidler Hall	1956
Kansas		
Kansas State College of Pittsburg	Student Center	1951
University of Kansas, Medical Center	Student Center	1954
Washburn University of Topeka	Memorial Union	1951
Kentucky		
Morehead State College	Doran Student House	1957
Western Kentucky State College	Paul L. Garrett Student Center	1951
Louisiana		
Northwestern State College of Louisiana	Bullard Hall	1950
The University of Southwestern Louisiana	Guillary Hall	1956
Maine		
Oblate College and Seminary	St. Gerald's Hall	1957
University of Maine	Memorial Union	1953
Maryland		
St. Joseph College	Student Center	1956
University of Maryland	Student Union	1954
Massachusetts		
Brandeis University	Mailman Commuter Center	1957
	Sherman Student Center	1953
Harvard University	Harkness Commons	1950
	Kresge	1953
University of Massachusetts	Student Union	1956
Williams College	Baxter Hall	1953
Michigan		
Calvin College	Commons	1952
Michigan College of Mining and Technology	Memorial Union	1952
University of Detroit	Student Union	1956
The University of Michigan	Student Activities	1957
Western Michigan University	University Center and Food Service	1957
Minnesota		
University of Minnesota, Duluth Campus	Kirby Student Center	1953
Mississippi		
Holmes Junior College	Lorance Hall	1957
Mississippi Southern College	R. C. Cook Student Union	1955
The Northeast Mississippi Junior College	Student Center	1952
Wood Junior College	Dining Hall and Student Center	1949
Missouri		
Maryville College of the Sacred Heart	Duchesne Hall	1950
Northwest Missouri State College	The Union Building	1952
University of Missouri	Memorial Union	1952
Montana		
Eastern Montana College of Education	Student Union	1954
Montana State University	Lodge	1955
Northern Montana College	Student Union	1948
New Hampshire		
University of New Hampshire	Memorial Union	1957
New Jersey		
Glassboro State College	Memorial Hall	1955

State and institution	Name of building	Year
New Jersey--con.		
Montclair State College	Student Life	1957
Rutgers, The State University	The Ledge	1957
Rutgers, The State University, Douglass College	Student Center	1952
Stevens Institute of Technology	Baliss	1948
Trenton State College	Phelps Hall	1955
New Mexico		
Eastern New Mexico University	Associated Student Center	1950
New York		
Barnard College, Columbia University	Barnard Hall Annex	1948
Clarkson College of Technology	Lewis House	1951
D'Youville College	D'Youville Lodge	1955
Hobart College	Student Union - Dining Hall	1951
Hofstra College	Memorial Hall	1949
Marist College	Adrian Lounge	1957
New York University	Gould Student Center	1954
Paul Smith's College of Arts and Sciences	Recreation Hall	1953
Syracuse University	Sexton	1956
	Chapel House	1957
North Carolina		
Bennett College	David D. Jones Student Union	1950
Brevard College	Sims Campus Center	1957
Chowan College	Askew Student Center	1956
Davidson College	David Owens College Union	1953
Lees-McRae College	Student Center	1948
Southeastern Baptist Theological Seminary	The Lea Student Center	1951
Woman's College, University of North Carolina at Chapel Hill	Elliott Hall	1952
North Dakota		
Jamestown College	Student Union	1949
North Dakota State University	Memorial Union	1953
University of North Dakota	Student Union	1951
Ohio		
Antioch College	Antioch Union	1956
Ashland College	Student Union	1953
Case Institute of Technology	Tomlinson Student Union	1948
College of Steubenville	Activities	1954
Kent State University	Kent State Union	1949
Miami University	Miami University Center	1957
The Ohio State University	Ohio Union	1949
Rio Grande College	Student Center	1957
Wittenberg University	Student Union - Bookstore	1954
Oklahoma		
Bethany-Nazarene College	Memorial Student Union	1953
Central State College	Student Union	1953
East Central State College	Memorial Student Union	1951
Eastern Oklahoma Agricultural and Mechanical College	Student Union	1957
Northern Oklahoma Junior College	Memorial Union	1957
Oklahoma City University	The C. Q. Smith Student-Faculty Center	1955
Oklahoma College for Women	Student Union	1949
Oklahoma Military Academy	Visitors' Center	1950
Phillips University	Student Center	1955
Southeastern State College	Student Union	1949
Southwestern State College	Memorial Student Center	1956
Oregon		
University of Oregon	Erb Memorial Student Union	1948
University of Portland	Pilot House	1951
Pennsylvania		
Duquesne University	Student Lounge	1948
Geneva College	Brigadoon	1950
The Pennsylvania State University	Hetzel Union	1955
Temple University	Student Center	1948
Villanova University	Dougherty Hall	1955
Washington and Jefferson College	Student Center	1957

State and institution	Name of building	Year
Rhode Island		
University of Rhode Island	Rhode Island Memorial Union	1954
South Carolina		
The Citadel - The Military College of South Carolina	Mark Clark Hall	1957
Columbia College	Columbia Student Center	1951
South Carolina State College	Student Center	1954
University of South Carolina	Russell House	1955
South Dakota		
South Dakota State College of Agriculture and Mechanic Arts	Union Building Addition	1957
Tennessee		
Carson-Newman College	Baker Memorial	1951
East Tennessee State College	College Grill	1951
Hiwassee College	Rymer Hall	1954
Maryville College	Y Store	1948
Memphis State University	Cafeteria and Student Center	1950
Middle Tennessee State College	Student Union	1951
Texas		
Agricultural and Mechanical College of Texas	Memorial Student Center	1951
East Texas State College	Student Union	1949
Howard County Junior College	Student Union	1951
North Texas State University	Student Union	1949
Odessa College	Student Union	1956
Ranger Junior College	Union	1952
St. Philip's College	Student Union	1953
Sam Houston State Teachers College	Student Union	1951
San Antonio College	Loftin Student Center	1954
Southern Methodist University	Umphrey Lee Student Center	1955
Sul Ross State College	Student Union	1949
Texas Christian University	Brown Lupton Student Center	1955
Texas Southern University	Lanier Union Building	1954
Texas Southmost College	Student Center No. 81	1948
Texas Technological College	Tech Union Building	1951
Texas Wesleyan College	Boaz Student Center	1949
Texas Western College, University of Texas	Student Union	1948
Trinity University	Student Union	1952
Victoria College	Student Union	1949
West Texas State College	Cafeteria, Student Union and Bookstore	1957
Wharton County Junior College	Hutchins Memorial Student Union	1956
Utah		
University of Utah	University of Utah Union	1957
Utah State University of Agriculture and Applied Science	Student Union	1953
Weber College	T.U.B.	1948
Virginia		
Mary Baldwin College	Student Activities	1952
Sweet Briar College	Date House	1948
Washington		
Gonzaga University	Student Union	1954
Grays Harbor College	Student Union	1957
Skagit Valley College	Roost	1948
University of Washington	Student Union	1948
Whitworth College	Hardwick Memorial Student Center	1957
Yakima Valley Junior College	Tepee Union	1956
West Virginia		
Glenville State College	Dining Hall and Student Center	1957
Salem College	Student Union	1949
Wisconsin		
Carroll College	Commons-Union	1957
Lawrence College	Memorial Union	1951

List B.--College Union Planning Bibliography

1. Aggrey, Rudolph. Bennett's New Union Building Is Real Center of Student Life. College and University Business, 10:6, 35-38, June 1951.

2. Alexander, Robert A. They Built a Union for Medics. College and University Business, 31:6, 42-44, December 1961.

3. Berry, Chester A. Planning a College Union Building. New York: Bureau of Publications, Teachers College, Columbia University, 1960. 210 p.

4. _________. Planning the Building. College and University Business, 28:6, 43-46, June 1960.

5. Brewster, Sam F. Don't Get Caught With Your Plants Down. In Proceedings: Association of College Unions, Colorado Springs, Colo., April 16-19, 1961. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 76-82.

6. Briscoe, Keith C. The Union Moves Outdoors. In Proceedings: Association of College Unions, Colorado Springs, Colo., April 16-19, 1961. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 256-263.

7. Bryson, Fred W. Student Center Worth Waiting and Working For. College and University Business, 22:1, 32-36, January 1957.

8. Burge, Frank. Student Hangout at K.U. College and University Business, 22:2, 54-58, February 1957.

9. Burnham and Hammond, Inc. Southern Illinois University, University Center. Carbondale, Ill.: Southern Illinois University, 1958. 48 p.

10. Butts, Porter. A Community Center--The College Union. College and University Business, 28:6, 29, June 1960.

11. _________. Desirable First Steps in Organizing a Union Project. In Proceedings: Association of College Unions, Swampscott, Mass., April 26-29, 1950. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 32-34.

12. _________. Is Student Union the Right Name? College and University Business, 13:2, 17, August 1952.

13. _________. State of the College Union. Journal of Higher Education, 22:75-84, February 1951.

14. Caldwell, Richard M. College Union Is Convention Center. College and University Business, 12:4, 30-33, April 1952.

15. Carroll, John A. Role of the Urban College Union in Meeting the Out-of-Class Needs of the Commuting Student. In Proceedings: Association of College Unions, Colorado Springs, Colo., April 16-19, 1961. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 181-186.

16. Casati, Raymond W. College Union Building Growing Pains: The Steps in Planning a New Union Building. In Proceedings: Association of College Unions, Indiana University, Bloomington, April 24-27, 1960. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 100-104.

17. College and University Student Union or Student Center Buildings Reported To Have Been Constructed During the 1948-1957 Decade. Washington: Division of Higher Education, Office of Education, U. S. Department of Health, Education, and Welfare, April 24, 1961. 7 p. (Dittoed)

18. Crabb, Theodore. The Union Moves Outdoors. In Proceedings: Association of College Unions, Colorado Springs, Colo., April 16-19, 1961. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 243-255.

19. Creative Planning: The Student Center. In New Dimensions in Junior College Planning. Stanford, Calif.: School Planning Laboratory, School of Education, Stanford University, 1958. p. 65-72.

20. Crouch, Walter. Student Center at Small Prairie College. College and University Business, 23:5, 34-37, November 1957.

21. Dalia, Franklin C. What To Anticipate in Readying a New College Union. College and University Business, 13:2, 30-31, August 1952.

22. Donovan, George. Penn State's Union Building. College and University Business, 19:5, 34-37, November 1955.

23. Eastburn, Warrine. Function and Beauty Combine in Connecticut Center. College and University Business, 30:3, 43-45, March 1961.

24. Educational Specifications for the College Heights Campus. San Mateo, Calif.: College of San Mateo, June 1958. p. 29-30, 116-123.

25. Erdahl, Gerald O. T. Between Dormitories and Union, Financial Competition Isn't Healthy. College and University Business, 19:4, 21-22, October 1955.

26. Fairbrook, Paul. Our Central Bakeshop Is a Source of Pride and Profit. College and University Business, 21:1, 49-50, July 1956.

27. Freese, Gordon P. Students Planned This Student Center. College and University Business, 19:1, 21-23, July 1955.

28. Gabrielsen, M. Alexander, and Caswell M. Miles. The Community Center Building. In Sports and Recreation Facilities: For School and Community. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1958. p. 152-165.

29. Hamilton, R. W. Memorial Union for University of Maine Student Activities. American School and University, 26:341-344, 1954-1955.

30. Hare, Michael M. Owner-Architect Relationship. In Proceedings: Association of College Unions, Swampscott, Mass., April 26-29, 1950. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 34-36.

31. _________. Valparaiso Union--A Study of Costs and Architectural Form. College and University Business, 14:4, 32-37, April 1953.

32. Harper, Earl E. Temple of the Good Life: College Union. College and University Business, 21:5, 31-32, November 1956.

33. Harwood, Frank. Union Building at Michigan Tech Serves Dual Purpose. College and University Business, 15:1, 36-40, July 1953.

34. How, Stan. Residence Hall and Student Center. College and University Business, 27:1, 36-38, July 1959.

35. James, Edward D. The Race With Space: New Ideas in Union Equipping and Planning. In Proceedings: Association of College Unions, Indiana University, Bloomington, April 24-27, 1960. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 160-162.

36. Jones, Nelson B. The College Union and the Residence Hall. In Proceedings: Association of College Unions, Swampscott, Mass., April 26-29, 1950. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 15-27.

37. Jordan, Harold W. College Union Building Growing Pains: The Steps in Planning a New Union Building. In Proceedings: Association of College Unions, Indiana University, Bloomington, April 24-27, 1960. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 98-100.

38. ________. Where Do They Eat? In Union Building or Residence? College and University Business, 21:4, 54-56, October 1956.

39. Kaiser, B. T. Student Union at Indiana State. Teachers College Journal, 24:64, January 1953.

40. Kelsey, F. Lamar. Colorado College Center Is Flexible. College and University Business, 31:5, 68-73, November 1961.

41. Ketter, J. F. Campus Community Centers; Ohio Union, Ohio State University. Recreation, 54:356+, September 1961.

42. Kottner, Loren V. Planning for a Union Building. College and University Business, 24:2, 40-41, February 1958.

43. ________. Thorough Planning Makes a Union. College and University Business, 25:3, 28-31, September 1958.

44. Lashmit, Luther. Union Building for Woman's College in the South. College and University Business, 10:3, 33-36, March 1951.

45. Lichtenfelt, R. J. Residence Halls vs. Student Unions. College and University Business, 16:5, 49, May 1954.

46. Lindberg, Arthur F. Student Union Fulfills Social and Recreational Requirements. College and University Business, 13:4, 38-41, October 1952.

47. Liner, Everett W. Vending Machines Work 24 Hours a Day. College and University Business, 19:3, 41, September 1955.

48. Looman, A. R., and W. M. Hare. Student-Financed Union at Valparaiso University. American School and University, 28:329-352, 1957-1958.

49. Madonna Hall. Catholic School Journal, 60:73-75, February 1960.

50. Maienknecht, Gilbert O. A Campus Center for Michigan Students. College and University Business, 31:3, 64-66, September 1961.

51. Manla, Georgette N. Eleven Years of College and University Student Union Construction (1950 through 1960). American School and University, 32:125-144, 1960-1961.

52. Markham, Fred L. Union Building at Utah State Agricultural College. College and University Business, 13:2, 34-37, August 1952.

53. Mason, Alvin A. How to Start a Program in a New Union on a Well Established Campus. In Proceedings: Association of College Unions, Colorado Springs, Colo., April 16-19, 1961. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 113-119.

54. McConnell, Robert E. New College Union. College and University Business, 11:2, 34-35, August 1951.

55. Messer, J. F., and O. D. Turner. Efficient Bookstore Management. College and University Business, 23:4, 32-35, October 1957.

56. Morgan, Dane D. Sum Is Greater Than Its Parts in This College Union. College and University Business, 26:1, 29-31, January 1959.

57. Nicholls, W. O. Do-It-Yourself Bookstore. College and University Business, 23:2, 36-37, August 1957.

58. Noffke, Frank. Union Building at Case. College and University Business, 8:1, 24-26, January 1950.

59. ________. Union Building at Washington State is Six-Story Structure. College and University Business, 13:6, 36-41, December 1952.

60. Onderdonk, Chester D. N.Y.U.'s New Bookstore. College and University Business, 18:5, 29-31, May 1955.

61. Partridge, E. D. At Montclair College: A Triple Facility Student Life Building. American School and University, 28:365-370, 1956-1957.

62. Patterson, William N. Carolina Student House. College and University Business, 19:3, 27-30, September 1955.

63. Peterson, Basil H., and Robert E. Alexander. Student Center Is Hub of Out-of-Class Activities. College and University Business, 14:5, 37-38, May 1953.

64. Prince, W. L. How Best To Obtain Agreement of All Parties Concerned on Facilities To Be Included in a Union Building. In Proceedings: Association of College Unions, Swampscott, Mass., April 26-29, 1950. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 36-37.

65. Ramey, Uel C. Center Combines Beauty and Function. College and University Business, 32:5, 65-68, May 1962.

66. Recreation Center with Modern Interiors, Student Union Building, Ohio State University. Architectural Record, 112:4, 147-153, October 1952.

67. Remodeled Hotel Is Now a Student Union. School and College Management, 20:6, January 1951.

68. Rensselaer Students Help Finance Building. Higher Education, 13:2, 24, October 1956.

69. Reynolds, Russell. Every Campus Deserves the Best in Bookstore Operation. College and University Business, 22:2, 21, February 1957.

70. Riehl, J. A. Memorial Student Union Aids Gracious Living. American School and University, 30:381-386, 1958-1959.

71. Riker, Harold C. Building Relationships. In Planning Functional College Housing. New York: Bureau of Publications, Teachers College, Columbia University, 1956. p. 86-87.

72. ________. The Hall and the Student Union. In Planning Functional College Housing. New York: Bureau of Publications, Teachers College, Columbia University, 1956. p. 174-175.

73. Ritchie, H. R. College Bookstores: Their Place and Function. College and University Business, 20:5, 21, May 1956.

74. Schooley, John P. Functional Approach to a University Union at Bowling Green State University. American School and University, 32:109-112, 1960-1961.

75. Scott, L. W. Michigan State College Union Has Prize Kitchen. College and University Business, 9:2, 46-49, August 1950.

76. Spaeth, Raymond J. The Commons--I.I.T.'s New "Main Street," College and University Business, 18:4, 36-39, April 1955.

77. Stevens, George F. Unit by Unit This Union Grows. College and University Business, 21:4, 36-39, October 1956.

78. Stotz, Charles M. Student Union, Wells College. *College and University Business*, 26:6, 34-38, June 1959.

79. Student Center. In *Academic Space in Permanent Buildings*. Tallahassee, Fla.: Office of Educational Research and Service, Florida State University, April 1955. p. 67-68.

80. Student Center, North Carolina State College, Raleigh. *Progressive Architecture*, 36:7, 92-94, July 1955.

81. Student Commons, Illinois Institute of Technology. *Progressive Architecture*, 36:7, 104-105, July 1955.

82. Tallman, Robert B. Living Facilities on a New Campus. *American School and University*, 33:J1-J8, 1961-1962.

83. Taylor, J. C. At University of Missouri: Student Union Memorial for Two Wars. *American School and University*, 26:345-350, 1954-1955.

84. Timmons, Glenn W. Organizing a Union on a Small College Campus. *College and University Business*, 21:4, 47-48, October 1956.

85. Tourtelot, Edward M., Jr. Student Center Makes "Commuters" Feel Right at Home. *College and University Business*, 32:6, 76-78, June 1962.

86. Van Winkle, Harold. Student Union Provides for a Social Education. *College and University Business*, 11:4, 36-37, October 1951.

87. __________. University Union at Bowling Green. *College and University Business*, 25:6, 30-33, December 1958.

88. van Zwoll, James A. What Goes on in the College Center. *College and University Business*, 20:6, 28-29, June 1956.

89. Waggener, Marc G. Union and Food Service Share New Quarters on Indiana's Medical Center Campus. *College and University Business*, 17:3, 36-40, September 1954.

90. Watts, Ralph J. Memorial Union at Lawrence College. *College and University Business*, 12:6, 34-35, June 1952.

91. Williams, R. C. Aids to Planning a Student Union. *College and University Business*, 8:5, 33, May 1950.

92. Williams, Richard C. What to Anticipate During Construction. In *Proceedings: Association of College Unions*, Swampscott, Mass., April 26-29, 1950. Ithaca, N.Y.: The Association, Edgar A. Whiting, Sec., Cornell University. p. 41-42.

93. Woodruff, Douglas O. Activated Philosophy of a Student Union. *American School and University*, 33:L9-L14, 1961-1962.

94. Young, William L. Low-Cost Union and Chapel for Small College. *College and University Business*, 21:2, 38-40, August 1956.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

Division of Higher Education

HE

College and University Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

September 1962 OE-51004-14

GROSS AREA OF NON-RESIDENTIAL BUILDINGS, BY FACILITIES CATEGORY

by E. Eugene Higgins, Specialist for Physical Facilities,
Mary B. Fuller, Research Assistant, and
Dorothy M. Jones, Research Aide

From data reported for the "Inventory of College and University Physical Facilities, December 31, 1957,"[1] it has been possible to classify non-residential higher education buildings by broad functional groupings that are designated "facilities categories" (instructional, research, general, and auxiliary), by type of institution, by control (public or private), and by region. The specific "primary functions" of buildings which combine to form the "facilities categories" used here are identified in footnotes 2-5 of tables 1 and 2.

In the Inventory survey, the function that predominates within a building is designated its "primary function." Predominance is determined either by the number of students that can be accommodated or, if there is no student capacity to be considered, by the amount of assignable area for the function. Thus a building might contain general or academic classrooms, instructional laboratories, and faculty offices. If more student stations exist in classrooms than in laboratories, the building would be considered to have a "primary function" of general or academic classrooms. This primary function, in turn, would place the building in the facilities category of "instructional."

Function, then, relates to assignable area, and assignable area plus unassignable area (restrooms, corridors, stairs, wall and partition thicknesses, and the like) equals gross area. Gross area, therefore, is defined as the sum of the areas at each floor level included within the principal outside faces of exterior walls, neglecting architectural setbacks or projections. All stories or spaces which have floor surfaces with clear standing headroom (6'6" minimum) and which are being used or can be adapted to use are included.

Tables 1 (public institutions) and 2 (private institutions) present gross area for buildings in the facilities categories of instructional, research, general, and auxiliary. Using the fall 1957 enrollment, total gross areas per student have been computed. Comparisons of these tables reveal that the average gross area per student enrolled for non-residential buildings is higher for public institutions than for private, 147.3 and 137.6 square feet, respectively. Upon breaking down these two figures among the four facilities categories, it is seen that the distribution is quite similar except in research, where the only significant difference occurs, an average of 24.2 square feet per student enrolled for public institutions and 17.5 square feet per student for private institutions. Among public institutions, regional

---

1/ Part 3 of a 5-part study, *College and University Facilities Survey*, now in process. The institutions queried included all those listed in the *Education Directory, 1957-58, Part 3, Higher Education* (branch institutions considered as separate institutions when they responded separately), except for those for which the survey was not applicable. It should be noted that as of that date Alaska and Hawaii were considered outlying parts. Respondents represented 85.0 percent of these higher education institutions and 95.7 percent of their fall 1957 enrollment.

Table 1.--Fall 1957 enrollment and gross area of non-residential buildings occupied by public higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by type of institution, facilities category, and region

Region and type of institution	Fall 1957 enrollment[1] (respondents)	GROSS AREA OF NON-RESIDENTIAL BUILDINGS, BY FACILITIES CATEGORY									
		ALL CATEGORIES		INSTRUCTIONAL[2]		RESEARCH[3]		GENERAL[4]		AUXILIARY[5]	
		Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student
1	2	3	4	5	6	7	8	9	10	11	12
UNITED STATES[6]............	1,697,727	2,500,275	147.3	1,658,441	97.7	411,654	24.2	235,918	13.9	194,262	11.4
University............................	781,932	1,476,766	188.9	843,821	107.9	347,107	44.4	165,354	21.1	120,484	15.4
Liberal arts college...................	252,458	293,605	116.3	224,387	88.9	18,201	7.2	24,756	9.8	26,261	10.4
Teachers college......................	276,228	363,592	131.6	306,209	110.9	3,042	1.1	25,114	9.1	29,227	10.6
Independent technological school.......	32,725	61,457	187.8	49,128	150.1	3,717	11.4	4,409	13.5	4,203	12.8
Other independent professional school..	25,044	101,753	406.3	54,777	218.7	38,437	153.5	5,879	23.5	2,660	10.6
Technical institute-engineering related	780	1,090	139.7	1,090	139.7	-	-	-	-	-	-
Junior college........................	328,569	202,012	61.5	179,029	54.5	1,150	0.4	10,406	3.2	11,427	3.5
NORTHEAST[7]............	238,698	290,040	121.5	205,179	86.0	41,696	17.5	22,239	9.3	20,926	8.8
University............................	93,757	136,290	145.4	85,361	91.0	26,150	27.9	12,719	13.6	12,060	12.9
Liberal arts college...................	42,076	30,127	71.6	26,837	63.8	141	0.3	829	2.0	2,320	5.5
Teachers college......................	64,641	70,868	109.6	60,101	93.0	-	-	5,073	7.8	5,694	8.8
Independent technological school.......	5,211	4,642	89.1	3,466	66.5	864	16.6	120	2.3	192	3.7
Other independent professional school..	6,688	31,437	470.1	14,487	216.6	13,774	206.0	3,176	47.5	-	-
Technical institute-engineering related	780	1,090	139.7	1,090	139.7	-	-	-	-	-	-
Junior college........................	25,545	15,586	61.0	13,837	54.2	767	3.0	322	1.3	660	2.6
NORTH CENTRAL[8]............	507,887	839,324	165.3	519,271	102.2	174,804	34.4	83,610	16.5	61,639	12.1
University............................	304,078	594,729	195.6	320,299	105.3	158,629	52.2	69,217	22.8	46,584	15.3
Liberal arts college...................	41,584	62,306	149.8	41,921	100.8	13,885	33.4	3,434	8.3	3,066	7.4
Teachers college......................	100,767	132,293	131.3	114,262	113.4	263	0.3	8,609	8.5	9,159	9.1
Independent technological school.......	6,371	11,331	177.9	8,566	134.5	1,160	18.2	875	13.7	730	11.5
Other independent professional school..	2,594	15,840	610.6	11,723	451.9	867	33.4	1,224	47.2	2,026	78.1
Technical institute-engineering related	-	-	-	-	-	-	-	-	-	-	-
Junior college........................	52,493	22,825	43.5	22,500	42.9	-	-	251	0.5	74	0.1
SOUTH[9]............	486,453	827,604	170.1	550,672	113.2	116,283	23.9	84,546	17.4	76,103	15.6
University............................	237,388	432,399	182.1	250,067	105.3	88,907	37.5	54,249	22.9	39,176	16.5
Liberal arts college...................	88,353	150,300	170.1	113,476	128.4	4,175	4.7	14,436	16.3	18,213	20.6
Teachers college......................	86,341	127,512	147.7	104,664	121.2	1,624	1.9	9,317	10.8	11,907	13.8
Independent technological school.......	14,336	26,011	181.4	19,887	138.7	1,269	8.9	2,312	16.1	2,543	17.7
Other independent professional school..	14,043	42,383	301.8	20,861	148.6	19,925	141.9	963	6.9	634	4.5
Technical institute-engineering related	-	-	-	-	-	-	-	-	-	-	-
Junior college........................	45,992	48,999	106.5	41,717	90.7	383	0.8	3,269	7.1	3,630	7.9
WEST[10]............	464,689	543,307	116.9	383,319	82.5	78,871	17.0	45,523	9.8	35,594	7.7
University............................	146,709	313,348	213.6	188,094	128.2	73,421	50.0	29,169	19.9	22,664	15.4
Liberal arts college...................	80,445	50,872	63.2	42,153	52.4	-	-	6,057	7.5	2,662	3.3
Teachers college......................	24,479	32,919	134.5	27,182	111.0	1,155	4.7	2,115	8.6	2,467	10.1
Independent technological school.......	6,807	19,473	286.1	17,209	252.8	424	6.2	1,102	16.2	738	10.8
Other independent professional school..	1,719	12,093	703.5	7,706	448.3	3,871	225.2	516	30.0	-	-
Technical institute-engineering related	-	-	-	-	-	-	-	-	-	-	-
Junior college........................	204,530	114,602	56.0	100,975	49.4	-	-	6,564	3.2	7,063	3.5

[1] Represents total degree-credit enrollments as taken from Opening Enrollment in Higher Educational Institutions, Fall 1957. (Circular No. 518). U. S. Department of Health, Education, and Welfare, Office of Education. Washington: U. S. Government Printing Office, 1958. 48 p. Enrollments not available there obtained directly from the institution or from fall 1957 enrollments quoted in Education Directory, 1958-59, Part 3, Higher Education.

[2] Includes laboratory schools, fieldhouses, gymnasiums, home management laboratory houses, general classrooms, libraries, museums, instructional laboratories, swimming pools, teaching hospitals, and other instructional spaces.

[3] Includes agriculture, astronomy, biology, chemistry, mathematics and statistics, physics, other physical sciences, social sciences, dentistry, engineering, and medicine.

[4] Includes administration facilities, armories, auditoriums, chapels, extension service and experiment stations, faculty clubs and facilities, garages, non-teaching hospitals, maintenance shops, faculty offices, stadiums, theaters, power and heating plants, and warehouses.

[5] Includes auxiliary enterprise facilities, college unions, non-residential food facilities, and student infirmaries.

[6] Exclusive of U. S. Service Schools and outlying parts (Alaska, Canal Zone, Guam, Hawaii, and Puerto Rico).

[7] Includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

[8] Includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

[9] Includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and District of Columbia.

[10] Includes Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Table 2.--Fall 1957 enrollment and gross area of non-residential buildings occupied by private higher education institutions participating in the College and University Facilities Survey, Part 3, as of December 31, 1957, by type of institution, facilities category, and region

Region and type of institution	Fall 1957 enrollment[1] (respondents)	GROSS AREA OF NON-RESIDENTIAL BUILDINGS, BY FACILITIES CATEGORY									
		ALL CATEGORIES		INSTRUCTIONAL[2]		RESEARCH[3]		GENERAL[4]		AUXILIARY[5]	
		Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student	Total sq. ft. (in hundreds)	Sq. ft. per student
1	2	3	4	5	6	7	8	9	10	11	12
UNITED STATES[6]............	1,200,051	1,651,209	137.6	1,154,716	96.2	209,983	17.5	165,955	13.8	120,555	10.0
University..............................	492,187	648,375	131.7	394,144	80.1	150,592	30.6	68,194	13.9	35,445	7.2
Liberal arts college....................	513,270	726,015	141.4	566,572	110.4	15,493	3.0	77,426	15.1	66,524	13.0
Teachers college........................	13,524	15,187	112.3	13,781	101.9	-	-	773	5.7	633	4.7
Independent technological school.......	57,211	76,895	134.4	49,980	87.4	18,065	31.6	4,858	8.5	3,992	7.0
Theological and religious school.......	20,942	31,040	148.2	21,589	103.1	-	-	4,883	23.3	4,568	21.8
Other independent professional school..	50,725	86,515	170.6	56,612	111.6	23,235	45.8	5,472	10.8	1,196	2.4
Technical institute-engineering related	7,393	5,944	80.4	5,907	79.9	-	-	23	0.3	14	0.2
Junior college..........................	44,799	61,238	136.7	46,131	103.0	2,598	5.8	4,326	9.7	8,183	18.3
NORTHEAST[7].............	505,034	676,918	134.0	443,059	87.7	128,639	25.5	63,371	12.5	41,849	8.3
University..............................	237,119	315,293	133.0	191,676	80.8	80,396	33.9	28,597	12.1	14,624	6.2
Liberal arts college....................	180,438	229,369	127.1	172,185	95.4	11,102	6.2	24,947	13.8	21,135	11.7
Teachers college........................	8,025	6,910	86.1	6,515	81.2	-	-	86	1.1	309	3.9
Independent technological school.......	37,467	52,730	140.7	29,896	79.8	16,082	42.9	4,099	10.9	2,653	7.1
Theological and religious school.......	5,185	7,465	144.0	5,215	100.6	-	-	1,095	21.1	1,155	22.3
Other independent professional school..	22,101	49,305	223.1	26,635	120.5	18,604	84.2	3,660	16.6	406	1.8
Technical institute-engineering related	1,848	1,387	75.1	1,387	75.1	-	-	-	-	-	-
Junior college..........................	12,851	14,459	112.5	9,550	74.3	2,455	19.1	887	6.9	1,567	12.2
NORTH CENTRAL[8]............	323,641	431,304	133.3	323,379	99.9	39,612	12.2	37,471	11.6	30,842	9.5
University..............................	112,258	147,918	131.8	88,295	78.7	35,684	31.8	13,410	11.9	10,529	9.4
Liberal arts college....................	153,497	214,579	139.8	177,403	115.6	1,572	1.0	20,751	13.5	14,853	9.7
Teachers college........................	2,847	3,724	130.8	3,149	110.6	-	-	333	11.7	242	8.5
Independent technological school.......	17,444	17,358	99.5	14,860	85.2	675	3.9	484	2.8	1,339	7.8
Theological and religious school.......	7,297	10,180	139.5	7,449	102.1	-	-	1,124	15.4	1,607	22.0
Other independent professional school..	16,848	19,414	115.2	16,698	100.3	1,681	10.0	503	3.0	332	2.0
Technical institute-engineering related	3,983	3,642	91.4	3,628	91.1	-	-	-	-	14	0.4
Junior college..........................	9,467	14,489	153.0	11,697	123.6	-	-	866	9.1	1,926	20.3
SOUTH[9].................	269,097	393,616	146.3	278,002	103.3	31,942	11.9	47,763	17.7	35,909	13.3
University..............................	97,523	128,911	132.2	74,712	76.6	25,932	26.6	20,455	21.0	7,812	8.0
Liberal arts college....................	134,136	209,454	156.2	162,073	120.8	2,155	1.6	22,670	16.9	22,556	16.8
Teachers college........................	1,694	3,757	221.8	3,373	199.1	-	-	302	17.8	82	4.8
Independent technological school.......	2,300	6,807	296.0	5,224	227.1	1,308	56.9	275	12.0	-	-
Theological and religious school.......	5,497	8,675	157.8	5,922	107.7	-	-	1,958	35.6	795	14.5
Other independent professional school..	7,908	7,982	100.9	5,195	65.7	2,404	30.4	184	2.3	199	2.5
Technical institute-engineering related	553	187	33.8	187	33.8	-	-	-	-	-	-
Junior college..........................	19,486	27,843	142.9	21,316	109.4	143	0.7	1,919	9.8	4,465	22.9
WEST[10].................	102,279	149,371	146.0	110,276	107.8	9,790	9.6	17,350	17.0	11,955	11.7
University..............................	45,287	56,253	124.2	39,461	87.1	8,580	18.9	5,732	12.7	2,480	5.5
Liberal arts college....................	45,199	72,613	160.7	54,911	121.5	664	1.5	9,058	20.0	7,980	17.7
Teachers college........................	958	796	83.1	744	77.7	-	-	52	5.4	-	-
Independent technological school.......	-	-	-	-	-	-	-	-	-	-	-
Theological and religious school.......	2,963	4,720	159.3	3,003	101.3	-	-	706	23.8	1,011	34.1
Other independent professional school..	3,868	9,814	253.7	7,884	203.8	546	14.1	1,125	29.1	259	6.7
Technical institute-engineering related	1,009	728	72.2	705	69.9	-	-	23	2.3	-	-
Junior college..........................	2,995	4,447	148.5	3,568	119.1	-	-	654	21.8	225	7.5

---

[1] Represents total degree-credit enrollments as taken from Opening Enrollment in Higher Educational Institutions, Fall 1957. (Circular No. 518). U. S. Department of Health, Education, and Welfare, Office of Education. Washington: U. S. Government Printing Office, 1958. 48 p. Enrollments not available there obtained directly from the institution or from fall 1957 enrollments quoted in Education Directory, 1958-59, Part 3, Higher Education.

[2] Includes laboratory schools, fieldhouses, gymnasiums, home management laboratory houses, general classrooms, libraries, museums, instructional laboratories, swimming pools, teaching hospitals, and other instructional spaces.

[3] Includes agriculture, astronomy, biology, chemistry, mathematics and statistics, physics, other physical sciences, social sciences, dentistry, engineering, and medicine.

[4] Includes administration facilities, armories, auditoriums, chapels, extension service and experiment stations, faculty clubs and facilities, garages, non-teaching hospitals, maintenance shops, faculty offices, stadiums, theaters, power and heating plants, and warehouses.

[5] Includes auxiliary enterprise facilities, college unions, non-residential food facilities, and student infirmaries.

[6] Exclusive of U. S. Service Schools and outlying parts (Alaska, Canal Zone, Guam, Hawaii, and Puerto Rico).

[7] Includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

[8] Includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

[9] Includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and District of Columbia.

[10] Includes Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.

averages per student are much lower for all non-residential facilities categories in the Northeast and West regions than in the other two regions; among private institutions, there is not as much regional variation in per-student averages. The highest regional averages for the research facilities category are in the North Central region for public institutions and in the Northeast for private institutions.

Among the various types of public institutions, it is the "other independent professional schools" which show the largest amount of gross area per student enrolled for the combined non-residential facilities categories, not only for the United States but also region by region. Among private institutions, the same type of institution shows the largest amount of gross area per student for the combined non-residential facilities categories in the United States, but not for all regions: in the North Central region, the junior colleges have the highest average and there are four other types of institutions which have higher averages than "other independent professional schools"; in the South the "independent technological schools" have the highest average, and only the "technical institutes--engineering-related" have a lower average.

GPO 935350

Division of Higher Education
HE
College and University
Physical Facilities Series

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

August 1962
OE-51004-15

NEW CONSTRUCTION AND REHABILITATION ON COLLEGE CAMPUSES, 1959-60

by

W. Robert Bokelman, Chief, Business Administration Section,
and Leslie F. Robbins, Specialist for Business Administration

The fiscal year 1959-60 saw more construction completions on college campuses (as expressed in dollar expenditures) than were accomplished in any previous year for which construction projects were reported, either for Part 1 of the College and University Facilities Survey[1] or for the series of Higher Education Planning and Management Data.[2]

In the process of collecting the annual data on salaries, tuition and fees, and board and room for the Higher Education Planning and Management Data study for 1960-61, additional information was sought concerning construction and rehabilitation projects completed during the fiscal year 1959-60. This report will analyze the 1,458 responses received from the 1,917 institutions circularized, which replies represented 91.6 percent, by enrollment, of the public institutions and 82.3 percent of the private. The amounts reported were for buildings only--not land or campus improvements or equipment other than built-in.

Responding institutions reported 1,374 new construction and rehabilitation projects completed in 1959-60 at a total outlay of $828,231,000. Public institutions, which had 60.9 percent of the enrollment of reporting institutions, spent $531,423,000, or 64.2 percent of the total.

Expenditures for new construction were $802,450,000, or 96.9 percent of the total; rehabilitation totalled $25,781,000, or 3.1 percent. (For new construction only this was an increase of 37 percent over the previous year's expenditures; however, rehabilitation projects were 37 percent below the previous year's expenditures.) Expenditures for new construction completed by public institutions totalled $520,519,000, or 64.9 percent of the new construction total, and those by private institutions $281,931,000, or 35.1 percent of the new construction total. Rehabilitation projects completed that year cost public institutions $10,903,000, or 42.3 percent of the total for rehabilitation, and private institutions $14,877,000, or 57.7 percent.

The average cost per project for new construction was $703,904 for all institutions. For public institutions it was $754,375, and for private institutions, $626,513. Public institutions have enrollments that average somewhat larger than those of private institutions and so tend to build larger structures.

---

[1] Bokelman, W. Robert, and Rork, John B. *College and University Facilities Survey*, Office of Education. Circular No. 540.

[2] Bokelman, W. Robert, *Higher Education Planning and Management Data*, Office of Education Circulars Nos. 517, 549, 614, and 651.

Expenditures Distribution by Functional Type

Table 1 shows the distribution of combined new construction and rehabilitation expenditures by functional type of facility and by control (public and private). The number of projects, dollar amounts, and percentages are given for each of five functional types: instructional, research, general, residential, and "other auxiliary." Residential facilities were segregated from other auxiliary facilities in conformance with the pattern for other Office of Education studies of college and university facilities.

For total expenditures, public and private, it will be seen that instructional facilities got the largest share of construction and rehabilitation expenditures, over $336 million or 40.6 percent. Residential facilities were second in amount, $288 million, or 34.7 percent. Other auxiliary facilities such as college unions ($60 million) and food service facilities ($26 million) were next with a total of $97 million, or 11.7 percent. General buildings such as heating plants, maintenance shops, and auditoriums took $60 million, or 7.2 percent; and research facilities got $48 million, or 5.8 percent.

Public institutions devoted a larger share of their total expenditures to instructional facilities than did private institutions, 43.4 percent vs. 35.7 percent. In each of the other four functional categories, the public institutions spent a reciprocally smaller percentage of their funds than did private institutions.

Private institutions spent a slightly larger portion for residential facilities, 37.1 percent, than they did for instructional, 35.7 percent. For instructional, research, and general facilities combined, private institutions spent 49.2 percent of their total outlay; the corresponding percentage figure for public institutions was 56.1. Private institutions spent a greater percentage of their total expenditures for auxiliary facilities than did public institutions, 13.8 percent vs. 10.5 percent; the same is true for research, 6.1 percent vs. 5.6 percent.

New Construction Expenditures

Data for new construction only were divided by institutional control into three functional groupings: (1) instructional, research, and general combined; (2) residential; and (3) other auxiliary. Instructional, research, and general facilities received 53.2 percent of the total expenditures, or $426,607,000. (See table 2.) Residential buildings got 35.1 percent, or $281,798,000; and other auxiliary facilities got 11.7 percent, or $94,045,000.

Public institutions, in distributing their funds for new facilities, devoted 55.7 percent to instructional, research, and general buildings, or $289,924,000. They spent 33.9 percent, or $176,590,000 on residential facilities; and 10.4 percent, or $54,005,000, on other auxiliary facilities.

Private institutions spent 48.5 percent, or $136,683,000, for instructional, research, and general facilities; 37.3 percent, or $105,208,000, for residential; and 14.2 percent, or $40,040,000, for other auxiliary facilities.

Increase in New Construction Over 1958-59

By far the greatest percentage of increase in construction of new facilities completed in 1959-60 occurred in the category of other auxiliary facilities. Both public and private institutions more than doubled in dollar expenditures in this area. College unions and food facilities together increased from $44,733,000 in 1958-59 to $85,412,000 in 1959-60. In the other categories, increases were on the order of 37.2 percent. By function, the percentages of increase were: instructional, research, and general, 32.5 percent; residential, 29.7 percent; and other auxiliary facilities, 106.1 percent.

Rehabilitation Expenditures

Table 3 presents rehabilitation expenditures in the same manner as were shown new construction expenditures in the previous table. Here it is seen that facilities for instructional, research, and general functions received 68.0 percent of total rehabilitation expenditures, or $17,524,000. Residential buildings got 22.1 percent, or $5,710,000.

Table 1.--Distribution of higher education projects and expenditures for new construction and rehabilitation completed, by functional type and by control: 1959-60

Function	Total			Public			Private		
	Number of projects	Expenditures		Number of projects	Expenditures		Number of projects	Expenditures	
		Amount (in thousands)	Percent		Amount (in thousands)	Percent		Amount (in thousands)	Percent
Total	1,374	$828,231	100.0	777	$531,423	100.0	597	$296,808	100.0
Instructional	480	336,364	40.6	314	230,548	43.4	166	105,816	35.7
Research	96	48,029	5.8	76	29,937	5.6	20	18,092	6.1
General	176	59,738	7.2	101	37,832	7.1	75	21,906	7.4
Residential	462	287,508	34.7	204	177,456	33.4	258	110,052	37.1
Other auxiliary	160	96,592	11.7	82	55,650	10.5	78	40,942	13.8

Detail may not add to totals due to rounding.

Table 2.--Distribution of higher education expenditures (percentage and dollars) for new construction, by function and control: 1959-60

Function	Total		Public		Private	
	Percent	Amount (in thousands)	Percent	Amount (in thousands)	Percent	Amount (in thousands)
Total new construction	100.0	$802,450	100.0	$520,519	100.0	$281,931
Instructional, research, and general	53.2	426,607	55.7	289,924	48.5	136,683
Residential	35.1	281,798	33.9	176,590	37.3	105,208
Other auxiliary	11.7	94,045	10.4	54,005	14.2	40,040

Table 3.--Distribution of higher education expenditures (percentage and dollars) for rehabilitation, by function and control: 1959-60

Function	Total		Public		Private	
	Percent	Amount (in thousands)	Percent	Amount (in thousands)	Percent	Amount (in thousands)
Total rehabilitation	100.0	$ 25,781	100.0	$ 10,904	100.0	$ 14,877
Instructional, research, and general	68.0	17,524	77.0	8,393	61.4	9,131
Residential	22.1	5,710	7.9	866	32.6	4,844
Other auxiliary	9.9	2,547	15.1	1,645	6.1	902

Detail may not add to totals due to rounding.

Other auxiliary buildings got 9.9 percent, or $2,547,000. Public institutions distributed their rehabilitation expenditures as follows: 77.0 percent to instructional, research, and general facilities; 7.9 percent to residential; and 15.1 percent to other auxiliary buildings. Percentage distribution of private institutions for rehabilitation was 61.4 percent to instructional, research, and general facilities; 32.6 percent to residential; and 6.1 percent to other auxiliary buildings.

Project Type Expenditures Within Each Functional Type

Some comprehension of the magnitude of the construction and rehabilitation effort for the year may be had from a listing of project types and amounts under each functional type:

No. of Projects	FUNCTION	Total Cost
	Instructional	
10	Demonstration school	$ 5,957,000
6	Fieldhouse	2,837,000
32	Gymnasium	14,095,000
3	Home management laboratory	48,000
231	Instructional classroom	176,907,000
70	Library	40,730,000
2	Museum	678,000
95	Instructional laboratory	67,929,000
4	Swimming pool	1,034,000
7	Teaching hospital	21,623,000
20	Other instructional	4,526,000
480	Total instructional	$336,364,000
	Research	
35	Agricultural research	$ 8,204,000
1	Astronomy	275,000
11	Biological research	4,652,000
7	Chemistry research	4,659,000
3	Mathematics and statistics	3,022,000
8	Physics research	3,976,000
2	Other physical sciences	824,000
9	Engineering research	1,830,000
20	Medical research	21,587,000
96	Total research	$ 48,029,000
	General	
26	Administration building	$ 8,011,000
13	Auditorium	8,143,000
8	Chapel	2,836,000
2	Extension or experiment station	162,000
3	Faculty club	487,000
1	Garage	58,000
4	Nonteaching hospital	933,000
24	Maintenance shop	3,630,000
33	Multipurpose	14,006,000
13	Office building	4,430,000
6	Stadium	1,898,000
3	Theater	664,000
28	Power and heating plant	13,871,000
5	Warehouse	236,000
7	Other general	373,000
176	Total general	$ 59,738,000
	Residential	
8	Faculty apartment	$ 1,829,000
20	Faculty-staff house	915,000
34	Fraternity and sorority house	4,354,000
2	Hotel-type accommodation	935,000
49	Married student apartment	37,388,000
167	Men's residence hall	98,268,000
144	Women's residence hall	81,727,000
6	President's home	371,000
24	Residence hall with separate units for men and for women	64,174,000
8	Other residential	1,547,000
462	Total residential	$287,508,000
	Other auxiliary	
68	College union	59,894,000
53	Food facilities	25,518,000
19	Infirmary (student health)	7,338,000
20	Other auxiliary	3,842,000
160	Total other auxiliary	$ 96,592,000
1374	Grand total	$828,231,000

Expenditures Distribution by Region

Table 4 and figure 1 present the regional distribution of higher education enrollment and of combined expenditures for new construction and rehabilitation, for public and private institutions. It is interesting to note the close correlation between enrollments and expenditures on a regional basis.

Among public institutions, the North Atlantic region, with 15.7 percent of the total public enrollment, spent 17.2 percent of the total public expenditures. The Great Lakes and Plains region, with 30.7 percent of the total public enrollment, spent 29.9 percent of the total public outlay. The Southeast, with 17.1 percent of the public enrollment, spent 18.2 percent of the total public expenditures. The West and Southwest, with 36.5 percent of the public enrollment, spent 34.7 percent of the total public expenditures.

Among private institutions, the North Atlantic, with 46.5 percent of the private enrollment, spent 48.7 percent of the total private expenditures. The Great Lakes and Plains, with 27.8 percent of the private enrollment, spent 21.6 percent of the total private expenditures. The Southeast, with 11.6 percent of private enrollment, spent 12.6 percent of the total private expenditures. The West and Southwest, with 14.1 percent of the private enrollment, spent 17.1 percent of the total private expenditures.

As in the preceding year, the private institutions in the North Atlantic region, which has the largest concentration of the older schools, spent most for rehabilitation in proportion to enrollments and to total expenditures.

Unit Costs

Unit construction costs--that is, the cost per square foot for new construction and for rehabilitation--were computed on the 1,128 projects wherein both the number of square feet and the cost had been reported (99.4 percent of the new construction reported and 92.4 percent of the rehabilitation reported). On new construction, the per-square-foot cost was computed by control, region, and functional type, but on rehabilitation, only the aggregate cost per square foot was computed, emerging as $9.00. Rehabilitation projects represent only 3.1 percent of total expenditures and are too nonstandard and miscellaneous in nature to yield meaningful results in direct comparisons by categories.

The cost per square foot of all functional types of new construction in all regions, public and private, for buildings reported as completed in 1959-60, was $19.90. For public institutions the cost was $19.10, and for private institutions, $21.40. (See table 5.) Instructional, research, and general facilities cost $21.60 per square foot, $20.70 public and $23.90 private. Residential facilities cost $17.30, $16.60 public and $18.60 private; other auxiliary facilities cost $21.60, $21.00 public and $22.50 private.

Unit costs by region are seen in table 6. The Southeast had the lowest unit cost, $19.00 per square foot. The West and Southwest was next lowest at $19.20; followed by the Great Lakes and Plains, $19.60; and the North Atlantic, $21.40. The greatest regional variation in total unit cost occurred in auxiliary facilities, ranging from $18.00 per square foot in the West and Southwest to $25.00 in the North Atlantic. The greatest regional variation in unit cost among public institutions was also in auxiliary facilities, from $17.20 per square foot in the West and Southwest to $25.60 in the North Atlantic. The greatest regional variation in unit cost among private institutions occurred in facilities for instructional, research, and general purposes, from $17.40 per square foot in the Great Lakes and Plains to $26.60 in the North Atlantic.

The variation in auxiliary facilities might be due to a prevalence range from infirmaries, usually quite costly, to print shops. The variation in instructional, research, and general facilities might result from a prevalence range from teaching hospitals to fieldhouses.

Unit cost of all new construction increased 4.7 percent over the previous year. Instructional, research, and general facilities increased 3.8 percent; auxiliary, 6.4 percent; and residential, 3.6 percent.

Table 4.--Regional distribution of higher education enrollment and expenditures for new construction and rehabilitation combined, by control: 1959-60

Region	Enrollment				Expenditures (in thousands of dollars)			
	Public		Private		Public		Private	
	Percent	Number	Percent	Number	Percent	Amount	Percent	Amount
Total	100.0	1,810,271	100.0	1,161,395	100.0	$531,423	100.0	$296,808
North Atlantic	15.7	283,428	46.5	539,713	17.2	91,400	48.7	144,674
Great Lakes and Plains	30.7	555,940	27.8	323,366	29.9	158,890	21.6	64,142
Southeast	17.1	310,419	11.6	134,294	18.2	96,780	12.6	37,340
West and Southwest	36.5	660,484	14.1	164,022	34.7	184,353	17.1	50,652

Table 5.--Per-square-foot cost of new construction completed by higher education institutions, by control and function: 1959-60

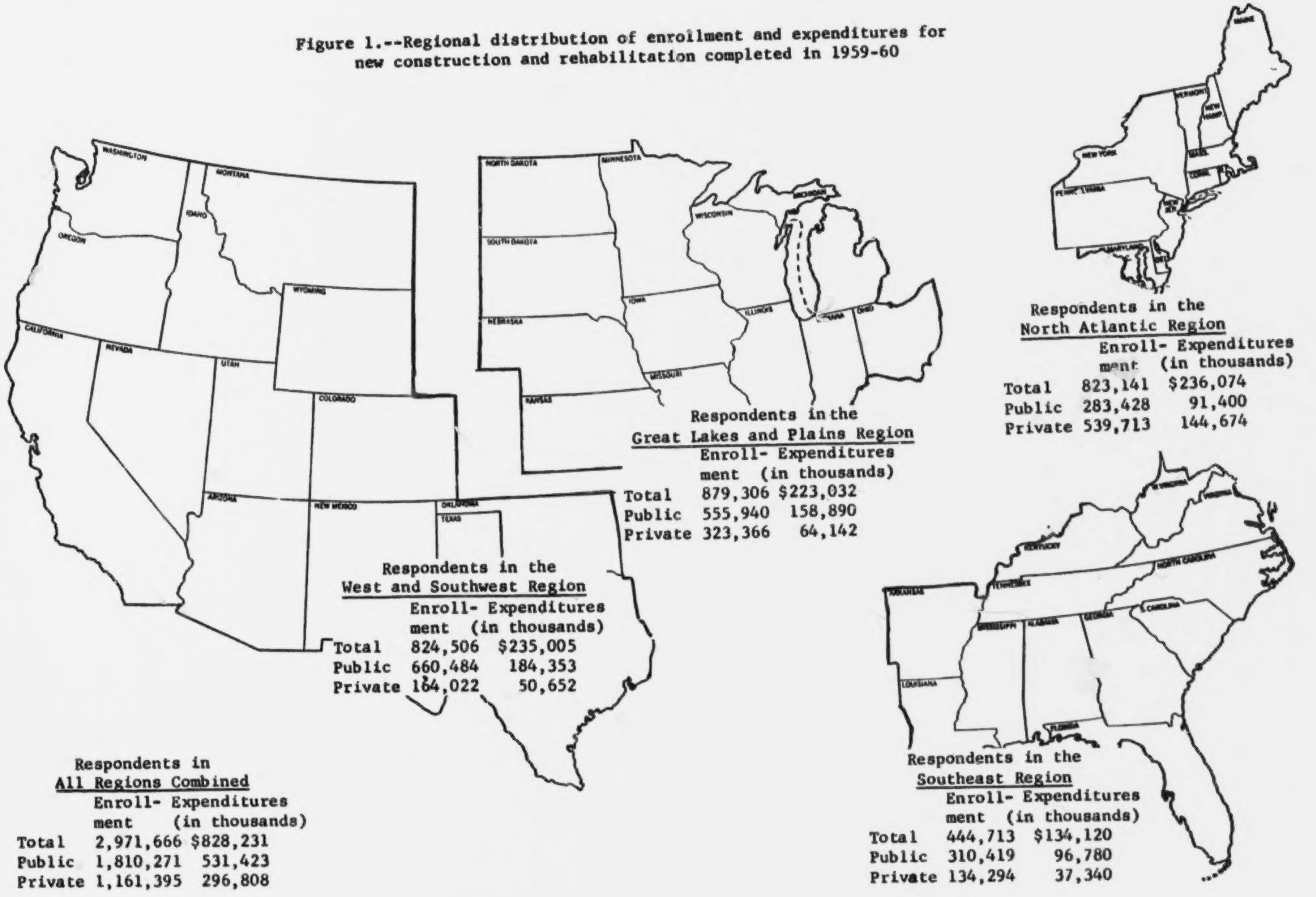
(Dollars in thousands; square feet in hundreds)

Function		Total	Public	Private
All types	Cost	$796,971	$516,128	$280,843
	Square feet	401,096	270,042	131,054
	Cost per sq. ft.	$ 19.90	$ 19.10	$ 21.40
Instructional, research, and general	Cost	$421,128	$285,533	$135,595
	Square feet	194,559	137,722	56,837
	Cost per sq. ft.	$ 21.60	$ 20.70	$ 23.90
Residential	Cost	$281,798	$176,590	$105,208
	Square feet	162,980	106,567	56,413
	Cost per sq ft.	$ 17.30	$ 16.60	$ 18.60
Other auxiliary	Cost	$ 94,045	$ 54,005	$ 40,040
	Square feet	43,557	25,753	17,804
	Cost per sq. ft.	$ 21.60	$ 21.00	$ 22.50

Table 6.--Average per-square-foot cost of new construction completed by higher education institutions, by function, control, and region: 1959-60

Region	All functions			Instructional, research, and general			Residential			Other auxiliary		
	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private
All regions	$19.90	$19.10	$21.40	$21.60	$20.70	$23.90	$17.30	$16.60	$18.60	$21.60	$21.00	$22.50
North Atlantic	21.40	19.00	23.40	22.80	19.40	26.60	18.70	16.70	20.10	25.00	25.60	24.60
Great Lakes and Plains	19.60	19.50	19.80	21.10	21.30	20.70	17.20	16.60	18.80	22.80	23.90	19.70
Southeast	19.00	19.70	17.40	22.60	24.20	17.40	15.50	15.10	16.20	19.50	17.40	22.00
West and Southwest	19.20	18.50	22.40	20.70	19.50	26.50	17.30	17.30	17.10	18.00	17.20	20.10

Figure 1.--Regional distribution of enrollment and expenditures for new construction and rehabilitation completed in 1959-60


WASHINGTON
OREGON
CALIFORNIA
IDAHO
MONTANA
NEVADA
UTAH
WYOMING
COLORADO
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
MINNESOTA
IOWA
MISSOURI
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
MAINE
VERMONT
NEW HAMP.
NEW YORK
MASS.
CONN.
PENNSYLVANIA
MARYLAND
W. VIRGINIA
VIRGINIA
KENTUCKY
TENNESSEE
NORTH CAROLINA
S. CAROLINA
ARKANSAS
LOUISIANA
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA

Respondents in the
West and Southwest Region

	Enroll-ment	Expenditures (in thousands)
Total	824,506	$235,005
Public	660,484	184,353
Private	164,022	50,652

Respondents in the
Great Lakes and Plains Region

	Enroll-ment	Expenditures (in thousands)
Total	879,306	$223,032
Public	555,940	158,890
Private	323,366	64,142

Respondents in the
North Atlantic Region

	Enroll-ment	Expenditures (in thousands)
Total	823,141	$236,074
Public	283,428	91,400
Private	539,713	144,674

Respondents in the
Southeast Region

	Enroll-ment	Expenditures (in thousands)
Total	444,713	$134,120
Public	310,419	96,780
Private	134,294	37,340

Respondents in
All Regions Combined

	Enroll-ment	Expenditures (in thousands)
Total	2,971,666	$828,231
Public	1,810,271	531,423
Private	1,161,395	296,808

The unit cost for public institution construction increased 3. 8 percent; instructional, research, and general increased 1. 5 percent; auxiliary, 6. 1 percent; and residential, 3. 8 percent. The unit cost for private institution construction increased 5. 4 percent for all functional types: 9. 6 percent for instructional, research, and general; 6.6 percent for auxiliary; and 2. 2 percent for residential.

The per-square-foot cost of rehabilitation, $9. 00, represented an increase of 20. 0 percent over the previous year.

Sources of Funds

Since there is a considerable degree of disparity between fund sources of public and of private institutions, especially as to the portion of their construction funds received for particular functional purposes, table 7 shows only the percentage distribution of fund sources for each control and does not combine public and private institutions.

Public institutions. --For all types of function, public institutions' chief source of construction funds was appropriations, 44.4 percent. The next source in order was revenue bonds with 30. 9 percent. Tax levies provided 6. 1 percent. No other single category of source yielded over 5. 0 percent, although State general obligation bonds did provide 4.7 percent. (See table 7.)

For the separate functional purposes of facilities, there was a wide diversity of source patterns, especially distinguishing the instructional, research, and general facilities from residential and other auxiliary types in public institutions. Instructional, research, and general facilities were built with appropriated funds to the extent of 63. 2 percent, but residential only to 18.9 percent and other auxiliary to 25.0 percent. General obligation bonds took care of 16. 3 percent of instructional, research, and general facilities but less than 4. 0 percent of either residential or other auxiliary types. Direct tax levies at State and local level provided 9. 8 percent of instructional, research, and general facilities for public institutions.

Residential facilities at public institutions were built with proceeds of revenue bonds to the extent of 69. 6 percent (56.4 percent from HHFA), and other auxiliary facilities were built with revenue bonds to 56. 4 percent (23. 3 percent HHFA). Gifts and grants supplied very little money to public institutions for residential and other auxiliary facilities, and only 5. 0 percent for instructional, research, and general facilities.

Private institutions. --The most productive single source of funds for construction among private institutions was that denoted as "gifts and grants," 37. 8 percent. Next in order were revenue bonds, 30. 5 percent, nearly all of this from HHFA. Amounts from other sources are widely spread: 7. 6 percent borrowed from endowment funds, 6. 8 percent borrowed from private and commercial sources, 5.6 percent from current funds, 4. 1 percent borrowed from other college funds, 4. 1 percent from Federal appropriations, and 3.5 percent from all other sources.

For instructional, research, and general facilities, gifts and grants provided 58.8 percent of expenditures by private institutions, Federal appropriations 7. 4 percent, and State appropriations 2. 4 percent. Borrowings from private and commercial sources provided 8.3 percent, from endowment funds 6.2 percent, and from other college funds 5. 8 percent. Current funds provided 7.1 percent.

Revenue bonds provided private institutions with 64. 2 percent of the cost of residential facilities and 45. 6 percent of the cost of other auxiliary facilities, in each case nearly all HHFA loans. Gifts and grants provided 12.4 percent of the residential facilities funds and 31. 0 percent of funds for other auxiliary facilities. In the case of other auxiliary facilities, 10. 9 percent of funds were obtained by borrowing from private and commercial sources. Borrowings from endowment funds provided 11.4 percent of funds for residential facilities.

Comparisons with 1958-59. --The pattern of sources for construction funds appears not to change to any dramatic degree from year to year. Reference to tables of sources of funds for the previous year of 1958-59 reveals very few percentage changes of over 3 per-

Table 7.--Percentage distribution of fund sources for combined new construction and rehabilitation completed by higher education institutions, by functional type and control: 1959-60

Source	All functional types		Instructional, research, and general		Residential		Other auxiliary	
	Public	Private	Public	Private	Public	Private	Public	Private
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total appropriations	44.4	5.7	63.2	10.5	18.9	1.1	25.0	0.7
State	40.6	1.2	57.5	2.4	17.2	-	24.6	-
Local	1.5	0.3	2.6	0.7	-	-	-	-
Federal	2.3	4.1	3.1	7.4	1.7	1.1	0.4	0.7
Total tax levy	6.1	-	9.8	-	0.8	-	3.4	-
State	3.6	-	6.2	-	0.3	-	-	-
Local	2.6	-	3.6	-	0.6	-	3.4	-
Total general obligation bonds	10.6	0.3	16.3	0.4	3.3	0.2	3.6	-
Local	3.4	-	5.7	-	-	-	1.9	-
State	4.7	-	6.3	-	2.9	-	1.3	-
State authority	2.1	-	3.5	-	0.4	-	0.4	-
Institutional	0.4	0.3	0.8	0.4	-	0.2	-	-
Total revenue bonds	30.9	30.5	3.0	0.7	69.6	64.2	56.4	45.6
Other than HHFA	9.3	0.4	2.5	0.4	13.2	0.5	33.1	0.2
HHFA	21.6	30.0	0.6	0.3	56.4	63.7	23.3	45.4
Total other sources	8.0	63.6	7.7	88.4	7.4	34.5	11.7	53.6
Gifts and grants	3.4	37.8	5.0	58.8	1.3	12.4	2.0	31.0
Current funds	1.2	5.6	0.8	7.1	0.4	3.7	4.9	5.7
Endowment funds	0.0	7.6	0.1	6.2	0.1	11.4	0.8	2.0
Borr'd. other col. funds	0.5	4.1	0.2	5.8	0.4	2.2	1.9	2.9
Borr'd. from private and commercial sources	1.6	6.8	1.1	8.3	2.6	3.3	1.0	10.9
Other	1.3	1.8	0.5	2.1	2.6	1.4	1.1	1.3

Detail may not add to totals due to rounding.

centage points. For all functional types, public institutions increased the portion coming from direct tax levies from 3. 3 percent in 1958-59 to 6. 1 percent in 1959-60. Private institutions used proceeds from HHFA borrowing 4. 0 percentage points more (from 26. 0 up to 30. 0 percent) and were reciprocally less dependent upon gifts and grants (41. 3 percent down to 37. 8 percent) and current funds (8. 2 percent down to 5. 6 percent). Borrowing from endowment funds rose from 4. 8 percent in 1958-59 to 7. 6 percent in 1959-60.

For instructional, research, and general buildings, public institutions revealed a slight shift from State appropriations to Federal appropriations and State direct tax levies. Private institutions, for this type of building, realized an increased portion from appropriations, up from 6. 3 percent to 10. 5 percent, but less from current funds, from 11. 5 percent down to 7. 1 percent.

For residential buildings, public institutions obtained a significantly larger share from State appropriations, from 6. 5 percent up to 17.2 percent. The reciprocal decreases occurred in State general obligation bonds (from 8. 9 percent down to 2. 9 percent) and in funds borrowed from private and commercial sources (from 7. 8 percent down to 2. 6 percent). Private institutions reduced their borrowing from private and commercial sources for residence facilities from 7. 0 percent to 3. 3 percent.

For other auxiliary functions, public institutions increased their use of State appropriations from 19. 9 percent in 1958-59 to 24. 6 percent in 1959-60. Use of revenue bonds by public institutions rose from 39. 5 percent to 56. 4 percent. Construction funds from general obligation bonds for public institutions reduced from 13. 2 percent to 3. 6 percent.

GPO 933724

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.